AN EVALUATION OF THE LIVESTOCK 101 EDUCATIONAL EXHIBIT AT THE STATE FAIR OF TEXAS

A Thesis

by

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Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

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May 2019

Major Subject: Animal Science

ABSTRACT

The need to produce enough food to feed the world is met with a quickly growing world population and new perspectives of agriculture amongst consumers, creating a divide from producer to purchaser. Consumers no longer have a direct tie to agriculture, therefore limiting hands-on experience and allowing consumers to form opinions based on often-misleading claims. The objective of this study was to evaluate the effectiveness of a State Fair of Texas educational exhibit, Livestock 101, on being a unique and influential learning tool in a unique environment. We concluded that while Livestock 101 did not prove to produce notable differences amongst fairgoers' knowledge of agriculture, there is a potential for improvement that could lead to influence, and it did produce notable differences on fairgoers' perceptions of agriculture. We also determined there are three primary reasons for attending the State Fair of Texas, and one of those is visiting the animals on the fairgrounds. Therefore, it was concluded that there is a desire to be more involved with agriculture and the animals amongst fairgoers, and there is a potential for influence on fairgoers that could be met by the Livestock 101 experience.

DEDICATION

First and foremost, I lift my praise and gratitude to my Lord and savior for the opportunity of education and for the promise of a life far fuller than I could imagine.

Thank you, family, for supporting me and guiding me through every step of my life. Mom and Dad, you have always been my number one fans and encouraged me to do and be my best, no matter the occasion. Thank you for instilling in me the value of hard work and dedication, and for always lifting me up on my lowest days. You two are incredible, and I strive to be half the parent that you both are. Casey, you have always been such a role model for me, and I am so thankful for your purposeful "tough love". I know I can without a doubt count thoughtful words and love from both you and Haley.

To my Pawpaw who instilled in me a foundation of agriculture and a passion that has driven me to success and continuous improvement in this industry, thank you. Thank you for building our family with that passion and teaching me the value in always striving for success.

Garrett, your influence over the past four months has been nothing short of God-sent and I am incredibly thankful for your support and kind words. I definitely could not have made it through the writing process without your ability to remind me of the blessings in my life and the guidance you provided. No question went unanswered or task left behind, because of your most kind willingness to help me make it through. Thank you.

To my friends, I am so thankful for your presence in my life, each and every one of you. Thank you for keeping a smile on my face through all of the stressful times. Thank you specifically, Dottie, Leighton, and Lauren for answering all of my questions!

ACKNOWLEDGEMENTS

There are many people who deserve the sincerest thanks for their contributions to this thesis.

I would like to first thank my committee chair, Dr. Skaggs, for first and foremost encouraging me to pursue a master's degree and then further believing in my ability to successfully complete a thesis project while also working a full-time job. I am truly thankful for your guidance and positive influence on my life throughout not only my time in graduate school, but all six years at Texas A&M University.

Dr. McKim, thank you for the late nights and long hours spent guiding me along in this process. This project, without a doubt, would not have been possible without your place on this committee.

Dr. Vestal, thank you for your genuine interest in my success and always believing in my ability to learn and grow, starting when you took a chance on a freshman employee now 6 years ago. Thank you for the many reminders to keep my values straight and focus on my many blessings rather than the stresses that came along.

Dr. Smith, thank you for feeding my passion for and interest in consumer education and agricultural advocacy. Without your current events class, my interest would not have been piqued in doing further research on consumer education.

To the State Fair of Texas and wonderful employees of Cultivate Agency, thank you for allowing me to be part of Livestock 101 from the beginning and supporting my idea for research. Without your willingness, this would not have been possible.

CONTRIBUTORS AND FUNDING SOURCES

Contributors

This work was supervised by a thesis committee consisting of Chris Skaggs, PhD [Chair] and Gary Smith, PhD [co-chair] from the Department of Animal Science, and Professors Billy McKim, PhD and Andy Vestal, PhD of the Department of Agricultural Leadership, Education, and Communications

The analyses depicted in Chapter 4 were conducted in part by Dr. Billy McKim. All other work conducted for the thesis was completed by the student independently.

Funding Sources

This work was made possible in part by the San Antonio Livestock Exposition through Texas A&M College of Agriculture and Life Sciences funding. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the San Antonio Livestock Exposition or the Texas A&M College of Agricultural and Life Sciences.

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CHAPTER I

INTRODUCTION

The problem

With a hastily growing world population expected to reach more than 9 billion people by the year 2050, agriculture is at the forefront of discussions because of a concerning need to meet the demand for food in a way that is accepted by consumers. A vast majority of today's consumers are far removed from the family farm whereas in previous generations, there was still a direct tie to the industry and therefore a perception of production agriculture fueled by tangible experiences. For example, a fourth of the population now lives on a farm as compared to the 20th century when more than half did according to Dimitri, Effland and Conklin (2005).

New perceptions of agriculture have developed that propose a more negative view of animal agriculture than ever before on various topics of high interest to the public. "Most Americans, whether young or old, have limited knowledge about agriculture and food production." (Frick, Machtmes, and Birkenholz, 1995, pp 44) According to Busch and Spiller (2018) public consumer awareness of how food is produced has increased but animal production is now associated with concerns on topics such as animal welfare, nutrition, and more with critiques of the industry working to tear down years of research defending agricultural processes and advancements.

Those altered perceptions are an influencing factor in consumer purchasing decisions, as well as decisions that affect guidelines imposed on farmers and ranchers to meet the updated consumer demand. Because there is so much at stake, there is a vital need to

further explore the farm-to-plate knowledge gap between producers and consumers (Higgins 1991), and Rumble and Buck (2013) suggest the agriculture industry needs to work towards building better knowledge and agricultural perceptions amongst the majority of America's consumers.

To bridge the gap between rural and urban populations and improve overall agriculture literacy, defined as the knowledge and perceptions of agriculture held by the general public by Wright, Steward, and Birkenholz (1994), it is vital that agriculturists work to not only educate the consumer base but also understand who consumers are to enforce strong societal, economic, and political connections. That is important because consumers' buying and voting power directly affects the agriculture industry (Wachenheim & Rathge 2002). While there is little research on the events, fairs are the only agricultural interaction some consumers have (Wachenheim & Rathge 2002). There is room for growth in utilizing that resource, and one opportunity for that educational avenue exists in livestock shows, particularly those hosted in more urban areas such as the State Fair of Texas in the urban Dallas, Texas.

The State Fair of Texas was established in 1886 and still serves as a highly respected livestock show in Texas but also engages more than two million visitors from across the nation each year (State Fair of Texas 2018). While the State Fair now has many different forms of entertainment for visitors, the mission remains to promote Texas agriculture. One way they reach that goal is through their agricultural education exhibits. One particular exhibit, Livestock 101, was formed in 2015 in efforts to educate fair visitors on the species of livestock they would see in the barns that day. With a 30-minute presentation led by a

host and co-host accompanied by an exhibitor and live animal, Livestock 101 is an opportunity for State Fair visitors to gain first-hand experience with the different livestock species shown by youth exhibitors.

Additionally, Livestock 101 also aims to educate those consumers about production agriculture and present a more thorough and diverse description of how animals are raised and their use in terms of products such as meat and by-products. The presentations aim to provide attendees with diverse information that they can then take and individually apply. Based on the intended programming, Livestock 101 follows the consumer education model, defined by Royer (1980), as a model aimed to produce people who can choose their own solutions to a question based on the analysis of different issues.

Livestock 101 presentations average more than 2,500 visitors per year, making the potential reach of the program a valuable consumer education tool. When people are farther removed from agriculture, their interaction with it decreases, and Livestock 101 not only allows the consumer to reconnect or initially connect, but it is working to improve the diminished agricultural literacy in America and perceptions of the industry that are too often based on minimal hands-on experience and misinterpretations of the industry (Tumbull, 2002).

Livestock 101 is not intended to be the solution to the large-scale problem, but rather an attempt in finding a solution to educate some consumers as Frick et al. (1995) mentioned the importance that individual consumers have some knowledge of agriculture because their own survival depends directly on it. Fairs offer an opportune educational venue to construct a positive change, and Livestock 101 aims to accomplish that. The main

purpose of this study was to evaluate if Livestock 101 made a positive change on knowledge and perception of animal agriculture of State Fair of Texas visitors. I found that there is an opportunity for Livestock 101 to make a lasting impact and have a large effect, but there is also room for improvement in the Livestock 101 programming and planning processes.

Because Livestock 101 is not only hosted at a fair, but also promotes youth livestock shows through their programming, the dynamics of those animal projects are a large part of the consumer education tool. Youth livestock shows have been part of America's culture for many decades, teaching youth valuable skills about raising animals and instilling in those 4-H and FFA members lessons of life through experiences and opportunities. The Smith Hughes Act of 1917 established the Cooperative Extension System and thus later enabled formation of 4-H and the Future Farmers of America, now known as the National FFA Organization.

To participate in a youth livestock show, exhibitors must be a member of either 4-H or FFA, or both. Major livestock shows, where exhibitors travel from all parts of the state, host an opportunity to exhibit livestock as well as provide other forms of entertainment for fairgoers. Davis et al. (2001) concluded that the most commonly found youth development benefits of youth livestock shows included improving social interactions, high regards to character and family, a healthy exposure to competition, and an expanded knowledge of caring for animals.

Concerning the opposing argument, consumers may believe that livestock shows are not beneficial because of unethical practices concerning both the animals and the youth

involved. While Nestor (2011) found that there were ethical concerns related to getting animals ready for the show ring and exhibitor reactions to the judges' decisions, the occurrence of even those unethical practices was rare. There was a low occurrence of unethical practices regarding both animals used in livestock shows and exhibitor behavior, and the majority of incidences that were found involved parents rather than the youth (Nestor, 2011). Nestor reports that while there have been identified cases of unethical behaviors, adults were the primary culprits, not the youth involved, and even those individuals are a small fraction of the total number of individuals involved in the youth livestock program.

Through the 4-H and FFA programs, youth have many different animal projects to choose from. The most popular shows at youth livestock shows include breeding and market animals. While the two projects have different approaches, they both have the same goal of producing animals to be part of the agriculture system that feeds and clothes the world, the overarching goal and product of agriculture. Through those experiences, youth exhibitors are inclined to experience the "learning by doing model" through the FFA and 4-H programs.

Previous research

Currently, there is very little research concerning consumer education on livestock knowledge or perception at fairs or livestock shows. That is likely because fairs are often seen as an entertainment activity to the general public, but there is a vast opportunity for agricultural adult education at fairs to meet the need of adult consumer education. Larsen (2017) found that visitors at an agricultural fair in Denmark left one of the oldest fairs in

the country with an overall more positive perspective of agriculture than they had coming into the fair, just based on average experiences at the fair even without any formal educational opportunity.

Based on the findings of a positive fairgoer experience, there is a need for further research on direct consumer education tools at fairs. Livestock 101 has consistent intentions of educating adult fair visitors about the livestock they will see in the barns that day and therefore impact both perceptions and knowledge of consumers as related to animal agriculture. Anderson-McCoon, Cartmell, and Terry (2016) determined a need for a study on the most beneficial aspects of a fair educational tool after taking a closer look at fairgoers perceptions of youth livestock projects at the California State Fair. Not only did this study of Livestock 101 accomplish a more in-depth look of an educational tool, but it also served as a means of comparing consumers of different backgrounds and in varied fair environments.

Larsen (2017) also said that the little research about consumers' experiences at fairs doesn't include the visitor's perspective on different aspects of a fair, but he believed that type of research was necessary.

The previously background and topic importance, as well as the lack of literature supports the concept that Livestock 101 is not only a necessary type of tool that should be implemented at fairs, but also that it is unique and should work. This study aimed at determining if it actually does.

Research Design

To effectively answer the hypothesis that Livestock 101 presents a potential for considerable adult education regarding livestock production in the agriculture industry, perceptions needed to be gauged at various points of educational opportunities in the fair. Multiple locations were necessary because fairgoers could be overwhelmingly influenced by their physical environment, therefore limiting or increasing the potential for education. The social cognitive theory, as explained by Bandura (2001), promoted that educational influence is highly affected by both social and physical environment.

To accurately examine the effect of the Livestock 101 model, a pre-test and post-test was necessary to understand the perceptions and knowledge of most fairgoers before being exposed to an educational opportunity because the best way to educate fairgoers could be based on their understandings and perceptions related to certain topics. Their ideals coming into the experience could affect their ability to learn or their interest in learning. For example, in the elaboration likelihood model, it is suggested that people would not respond to education if they were not motivated to do so by the educator.

Purpose and hypotheses

The purpose of this study was to evaluate the effectiveness of the Livestock 101 program at the State Fair of Texas on impacting State Fair of Texas adult visitors' knowledge and perception of animal agriculture and animals raised for youth livestock shows. By using pre-experience and post-experience surveys at three different locations across the State Fair, the outcomes determined the effect of Livestock 101 with respect to

other educational experiences. This study was designed to measure adult behaviors and identify tools to better reach adults.

Additionally, some potential improvements that can be made to the Livestock 101 programming were identified. This study also provides data for other fairs to use as a means of implementing new consumer education experiences at their fair. Other consumer education tools and communicators will also find this study useful as a means of determining what media sources consumers most frequently use and what their basic knowledge and perceptions are regarding animal agriculture before and after being introduced to an educational opportunity.

Before data collection, I hypothesized that Livestock 101 would have a positive effect on fairgoers' knowledge and perceptions of livestock. After data collection and observing the interactions of fairgoers at Livestock 101, I hypothesize that there is an opportunity for effective adult education at Livestock 101, but there are areas of the educational model that could be improved upon. I hypothesize that Livestock 101 could have a highly beneficial and positive effect on knowledge and perception regarding animal agriculture of State Fair of Texas visitors.

Objectives

This study posed the question; does Livestock 101 present a more positive and influential experience than just being in the barn or just being at the fair? The aim of this study was to describe the effectiveness of Livestock 101 as a unique educational experience in a unique environment. To answer that, first it was essential to conclude who

State Fair of Texas visitors generally are. A broad theme was also to better understand current consumer education needs and ideal techniques to meet those demands.

Specifically, the objectives of this study were to:

1. Determine if there are differences in State Fair of Texas attendees' reasons for attending the State fair of Texas.
2. Determine if there are demographic and psychographic differences in the people who attend the State Fair of Texas.
3. Determine the effect of the barn experience on people who attend the State Fair of Texas.
4. Determine the effect of Livestock 101 on people who attend the State Fair of Texas.
5. Determine if Livestock 101 positively impacts fairgoers' perceptions of animal agriculture at the State Fair of Texas.

Definitions

State Fair of Texas – The State Fair of Texas has been promoting "Texas agriculture, education, and community involvement through quality entertainment in a family-friendly environment" (State Fair of Texas 2018).

4-H – A nationwide youth organization part of the Cooperative Extension Service with the mission of "engaging youth to reach their fullest potential while advancing the field of youth development" (4-H 2018).

Farmyard – Big Tex's Farmyard is a "family fun" exhibit at the State Fair of Texas that "provides an educational experience through interactive exhibits as well as live animal displays" (State Fair of Texas 2018).

FFA – The National FFA Organization is a nationwide youth organization that "prepares members for premier leadership, personal growth, and career success through agricultural education" (National FFA Organization 2018).

Livestock 101 – A consumer education tool at the State Fair of Texas modeled after a late-night talk show with five 30-minute presentations each day of the fair. Co-hosts and an exhibitor bring a live animal on stage and discuss basic care of that livestock species.

Psychographic – A qualitative method of study to describe individuals based on psychological attributes. Most commonly is applied to studies on personalities, values, attitudes, interests, and lifestyles.

Limitations

Possible variables that limited or affected the results of this study included:

a. Plausible weaknesses associated with survey research such as limited data from non-respondents, lack of opportunity for researcher to reinterpret misunderstood questions, impersonal interaction with participants, technological error, and potential bias of respondents.
b. Study-specific weaknesses that could limit the number of responses such as ineffective incentives, inclement weather, busy fair schedules, and the ability to move forward in the survey without answering every question, which could result in incomplete data.

c. Limitations regarding the topic of interest such as a lack of motivation for visitors to listen to an entire Livestock101 presentation, the variability in different presentations each hour, such as a presentation on a lamb one hour and a pig the next with no routine, and lacking proper advertisement for the program.

d. The potential weakness regarding staged performances and planned events. Those types of performances can, at times, add to preconceived stereotypical images of the objects and people, in this case the agriculture industry and individuals involved, as suggested by Holloway (2004) and Edensor (2006).

CHAPTER II

LITERATURE REVIEW

The purpose of this study was to evaluate the effectiveness of Livestock 101 at the State Fair of Texas in positively impacting fairgoers' knowledge and perception of livestock production in agriculture. This chapter will discuss theories and literature that align with the expected findings of this research as well as the need for the study and purpose in the educational style of Livestock 101.

To fully understand this study, it is important to have a foundation of understanding about how perceptions of animal agriculture have shifted, the experiential learning model introduced through livestock shows, and previous agricultural consumer education conclusions. Additionally, tangible experiences offer a way to change the overall learning experience and that is why Livestock 101 was implemented in the current way. That form of learning is supported by models and theories including, the transformative learning theory, relation of the social cognitive theory and elaborative learning model to consumer education, and theories regarding attitude change in adults.

Perceptions of Animal Agriculture

Livestock 101 is a necessary educational tool at the State Fair of Texas because fairs are an opportune location to enhance agricultural perceptions of consumers who likely do not have a direct tie to agriculture. That missing step between production and products at the grocery store is not only negatively impacting perceptions, but in addition is being matched by the burden of a growing need to produce more food. A growing population expected to reach more than nine billion by the year 2050 is imposing new challenges on

the task of producing a sustainable food supply while it also affects production for people, the planet, and animals (Cornish et al., 2016).

Agriculture production has grown alongside population growth for hundreds of years because new technologies and practices have been imposed to better meet that demand. However, consumers recently are not as accepting about new ideals of production because of misleading information shared via many different avenues such as media sources, and the previously suggested divide between producers and consumers. Also, consumers regard some improvements that have been in place for years as new and often unsafe. However, Fraser (2001) suggested that over the last 50 years, animal agriculture has seen a shift in many different concepts including animal welfare, agricultural resources, and the producers.

Some consumers have developed a negative perception of animal agriculture because certain terms widely used in the industry are not commonly understood for their true definition. Within the livestock industry, welfare regards physical wellness, the availability of basic nutrition necessities, and freedom from physical harm, but the term has struck heightened interest among consumers and particularly activist groups in recent years and many new definitions have become known. Generally speaking, according to Broom (1991), welfare is a measurable state of an individual in relation to the environment, a definition that more closely resembles the term as used within the industry.

It is to be expected that in the majority of households, women make most of the food decisions for their family. That has a direct effect on purchasing decisions according to Phillips et al. (2011) and their conclusions that women may not purchase as much meat

because they have a higher concern for animal welfare and rights. However, that is not seen overwhelmingly in every household, and does not always result in purchasing less meat even with a female who has a high regard for animal use in agriculture (Phillips et al., 2011).

Proper animal care and a high concern for animal welfare are highly regarded by producers for many different reasons such as personal values, personal production standards, and knowledge that animals will not perform or grow if not properly cared for. However, because of the disconnection between farm and fork, consumers have grown to believe that producers are actually far less concerned about animal welfare. A "new perception" by creating an image that animal agriculture is harmful on animal welfare, solely focused on profit, owned and managed corporately, causes world hunger, does not produce healthy food, and is detrimental to the environment.

As supported by the previously mentioned literature, there is undoubtedly a need for consumer education that discusses those important concepts mentioned, but does so in a unique experience. Livestock 101 is intended to provide that education in that unique environment.

Experiential Learning Model

Livestock 101 teaches fairgoers about the species of livestock they will see in the barns that day by having both a live animal and a youth exhibitor as part of the presentation. Youth livestock shows are built on a foundation of the Experiential Learning Model, much like Livestock 101 is intended to do.

Both 4-H and FFA are based on opportunities that exhibit the experiential learning models where students learn concepts and skills by putting their knowledge to the test through competitive events, leadership opportunities, and through animal projects.

The Smith Hughes Act has been credited for changing rural youth education. A need for more education teaching rural skills arose in the early 1900s; so, the Smith Hughes Act was soon passed in 1917 to provide funding and encourage the teaching of agriculture education (National FFA Organization, 2018).

The passing of that act created the Cooperative Extension System at the USDA and by 1924, the 4-H clover was adopted and 4-H clubs were recognized (4-H, 2018). The Future Farmers of America was established in Kansas City, MO, in 1928, but the organization is now referred to as the National FFA Organization after changing the name to reflect the growing diversity in agriculture in 1988 (National FFA Organization, 2018).

One of the experiential learning opportunities through 4-H and FFA is the livestock project, where members raise one or more of many different species of livestock and compete in various types of contests to gain recognition for achieved success in their animal project. However, it is a known fact that many other benefits and learned skills are achieved through a livestock project. According to Gamon, Laird, and Roe (1992) the youth involved in livestock projects typically gain skills in keeping accurate records, proper animal health care and drug use, the ability to develop a balanced ration, and marketing their animal or project.

Davis, Keith, Williams, and Fraze (2001) found six major benefits to completing a project that were common among 4-H members: social relations, character, family,

competition, new cultures, and finance for education. Consumers with little knowledge of the two agriculture education programs may not understand what a youth livestock show is, and how it impacts youth, regarding far more than solely raising an animal, and therefore view the project opportunity as a more negative experience for the youth and the animal in some cases.

Students learn through their experiences with their projects, and Livestock 101 aims to capitalize on that aspect of the show-animal experience to give listeners an emotional reason to be intrigued by the presentation that further explains animal production in agriculture. Livestock 101 also follows the experiential learning model by providing visitors an experience with the animal and exhibitor.

Agricultural Consumer Education

While there are several articles discussing the value and need in consumer education, there is little research regarding agricultural consumer education tools. Social media is becoming more engrained in the everyday lives of individuals across the globe and because of that is now serving as a primary educational tool for the common consumer, but it cannot be used as the only educational tool because of a common perception in a lack of validity. However, Gangadharbatla, Bright and Logan (2014) found that while members of generation Y consumed more social media rather than traditional media such as newspapers or magazines, overwhelmingly, traditional media is still sought after as the most credible source for information.

While social media use amongst adults has been heavily researched, there is little research regarding consumers and their intake of social media as an agricultural education

vehicle. Livestock 101 in its' unique model does not use any sort of social media promotion, and has yet to determine if visitors would benefit from it.

Transformative Learning Theory

The effect of Livestock 101 on fairgoers' knowledge and perception of animal agriculture is dependent upon not only the educational ability of the program, but also the preconceived notions those individuals had before ever reaching the fair. That concept is supported by the transformative learning theory because adults form their view of the world and life itself based on their experiences such as values and associations. (Mezirow 1997) believed that every single person has a unique view of the world, so adults at the State Fair of Texas already have an opinion based on experiences formed about agriculture before ever reaching the fair, and that is what the pre-testing will evaluate.

Livestock 101 aims to implement the transformative learning theory by explaining animal agriculture in a way that the listeners can understand by trying to associate the given information with their personal lives. For this theory to be effective, educators should create a curriculum that requires learners to think more critically and find a need for related experiences to foster reflectivity on the topic (Mezirow, 1997). Mezirow (1991) said that it is explained in the theory how people perceive meaning of their experiences, how social structures can affect an individuals' experience and what interpretation they have towards the experience, and how learners can change meanings when they see an experience as dysfunctional.

Christie, Carey, Robertson, and Grainger (2015) found that if learners are allowed all of the necessary information, opportunity, and motivation to pose thorough and

challenging thoughts, they have the most expectant ability of becoming lifelong learners who can make the best of a world that is constantly changing. That is an important concept when considering knowledge and perceptions as related to agriculture because it is an industry that is continuously evolving to meet consumer demand and population growth.

Social Cognitive Theory

Miller and Dollard (1941) first considered the ideals of the social learning theory in and Bandura and Walters expanded (1963) upon those ideals, creating a social cognitive theory of learning that is widely utilized in social sciences today. The potential influence of Livestock 101 is not solely dependent upon the information shared during the presentations or the preconceived ideals related to agriculture. Instead, there are several other factors that can affect an adult learning experience, according to the social cognitive theory. Behavior, environmental factors, and personal factors work interactively to influence an individual's experience. (Bandura, 2001).

The social cognitive theory explains how people first achieve and then keep a certain pattern of behavior alongside offering terms of intervention. The theory provides a way to design, implement, and evaluate quality education programs. (Bandura, 1997) The three cohesive factors of environment, people, and behavior influence each other equally and provide a base for intervention strategies (Glanz et al., 2002).

Through the theory it is suggested that there are more integral parts to a successful educational experience than quality educators or proper surroundings. An observational learning experience gives an individual a greater opportunity for learning, as they are able to watch someone else first and then apply the change to themselves. Additionally, it may

aid in that individual's behavioral capacity because a person must understand what is required to perform a learned behavior and then must know they have the necessary skills for the behavior (Bandura, 1997).

Elaboration Likelihood Model

Livestock 101 was developed as a unique educational model to encourage fairgoers to learn about animal agriculture and specifically livestock shows because the message delivery is entertaining and the information being shared is applicable to every individual as a consumer. That framework, which includes a reason for personal interest, is vital to the success of the program because individuals need a motivation to learn. Through the elaboration likelihood model, it is suggested that attitudes guide behaviors and therefore learning. The likelihood that an individual will learn from a given model increases when that person finds interest and a positive perspective in the topic or activity, according to Petty and Cacioppo (1984).

Essentially, the elaboration likelihood model considers that when there is more motivation from the educator in a learning experience, the learners in the experience will gain more from it and have a positive perspective shift. By following this pattern, the elaboration likelihood is said to be high, meaning that the learner is more likely to associate the learned behavior with a memory or previous knowledge, think critically about and evaluate the new concepts, and form an individualized opinion regarding the topic (Petty and Cacioppo, 1984).

In Livestock 101, the animals and exhibitors are brought on stage to encourage fairgoer participation and interest in the presentation because people will be more reactive to a

visual livestock experience rather than through solely audible learning. Key concepts of success in the elaboration likelihood model include how much the participant is willing to think about the learning and materials, and the educator in the learning experience maintaining a clear vision of that ideal to increase the likelihood of behavior change if following this model (Petty & Cacioppo, 1984).

Attitudes in social science

Attitudes are an important concept in social science, but rarely reported on because of a common belief of invalid measurability. Attitudes have a direct implication on an adult learning experience. In this scenario, Livestock 101 can have a varied outcome on individuals because of their attitude coming into the experience, during the presentation, or after the learning has taken place while they are still on the fairgrounds putting their newfound knowledge or perception to the test with animals that are part of the youth livestock show. Fishbein and Ajzen (1975) conducted a thorough investigation and reporting of attitudes, behaviors, intentions, and beliefs and produced a theory that is widely considered throughout social science research.

Beliefs, attitudes, intentions, and behaviors are all related in a model of imposing change and are essential aspects of valid social science research according to Fishbein and Ajzen (1975). They discovered that beliefs are a combined result of the experience a person has and prior knowledge regarding the topic. Defining an individual's beliefs is part of an internal process.

It is vital to first understand how individuals, in the case of this project, agricultural consumers, form their ideas before constructing a way to influence those decision-making

constructs. Beliefs, attitudes, intentions, and behaviors can be changed if the process starts with introducing an individual to something that begins changing their beliefs first; that change can happen through either active participation or persuasive communication (Fishbein and Ajzen 1975).

Fishbein and Ajzen (1975) determined that a process they deemed the "Yale Approach" has a high potential for influencing change by influencing persuasion in a way that utilizes the independent variables in a scenario that could affect the resulting attitude change. They found that the success of the Yale Approach was dependent upon the recipient's receiving of the direct message content, determining that persuasion change is not solely based upon the information given, but to the individual receiving the communication.

Furthermore, while there are many different forms of message delivery to consider in educational models and a necessary basic understanding of how consumers may think through ideas, the model will be ineffective without a successful communicator. Individuals are influenced not only by the information given, but rather by how it is shared also. Fishbein and Ajzen (1975) determined that communicator credibility could make a difference in an individual's acceptance of the given information. Therefore, as a result, that level of acceptance would influence the overall amount of change made and their intentions to perform the newly learned behavior.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this study was to determine the effectiveness of Livestock 101 at the State Fair of Texas on positively impacting fairgoers' knowledge and perception of livestock production in agriculture. In this cross-sectional study, a survey was conducted to describe the self-reported demographic, psychographic, and behavioral characteristics of the participants. Additionally, a quasi-experiment was included to test the effectiveness of Livestock 101. In this chapter, I will describe the methods and procedures used to conduct the study including research design, subject characteristics, sampling procedures, recruitment participant flow, attrition, missing data, deleted cases, participant flow, sample sizes, power and precision, setting, and side effects.

Design

This research was approached with a cross-sectional design with quasi-experiment and descriptive study concepts. A cross-sectional design involves collecting data on a sampling of cases at one point in time to gain quantitative or quantifiable data to detect patterns of association (Bryman, 2012, p. 53). In this case, the difference at the given point in time was location within the fair. Bryman (2012) defined quasi-experiments as "studies that have certain characteristics of experimental designs but that do not fulfill all the internal validity requirements" (p. 50). Quasi-experiments with a cross-sectional design, such as this study, involve pre- and post-tests, but lack random sampling.

This study was considered a "natural experiment" component of quasi-experimental designs because the respondents were not put into certain groups of the sampling; they

were already in the different groups, based on location alone. Therefore, the sampling was not random, which could cause concerns of validity due to unequal group numbers, but Bryman (2012) suggested this type of research design is still compelling because it does not capture artificial inventions. Additionally, this type of design is suggested for evaluative studies such as this experiment where the overall effect of the Livestock 101 program is being evaluated.

An identical pre-survey was used for the Livestock 101 and the barn experience first questionnaire, and the post-survey for Livestock 101 and the barn experience were identical as well. The pre-101 and pre-barn instruments were each essentially split into three topics. The first focused primarily on why visitors came to the fair and what their interests were in exhibits or experiences at the fair. The next section focused on the respondents' overall knowledge of animal agriculture, youth livestock shows, 4-H and FFA programs, their overall perception of animals used for production agriculture, and their overall perception of animals raised for youth livestock shows. The final section included demographic information and educational background. The Farmyard questionnaire resembled those surveys with an additional question set based on the respondents' media preferences and average media use. The post-101 and post-barn questionnaires included the pre-survey agricultural knowledge, experience, and perception questions, with an added section focused on media preferences and media use. The questions focused on knowledge and perceptions regarding poultry, beef cattle, swine, and sheep.

There could be a concern with using the pre- and post-testing method in the desensitization of the respondent to the activity in which they are going to partake. In this case, the concern was that there might be a small change in knowledge or perception from Livestock 101 or the barn experience because of the pre-testing questions. However, the effect of the potential problem can be influenced by the experimental treatment and by the extent to which the pre-testing sensitized the respondents to the treatment (Campbell, 1957; Cook & Campbell, 1979). Therefore, the questions utilized in the pre-surveys carefully considered verbiage so as to not persuade respondents to follow a certain line of thinking about the agricultural experience in which they were soon to partake.

To answer the five research questions, questionnaire components were developed by a team of researchers at Texas A&M University and then tested for validity through a pilot-testing process two weeks prior to the first survey collection date. The pilot testing was completed online by a diverse group of social media users and individuals seemingly similar to the population that would be participating in the study at the State Fair. The instrument included mixed question types of multiple choice, preference ranking, scales, open-ended questions, and questions that included visible aids.

To answer the first research question regarding reasons attendees attended the State Fair, two questions were asked to determine what parts of the fair the individuals had intentions of visiting that day and their level of interest in each of those exhibits or events. Possible responses included attending a special event such as a football game, eating fair food, seeing animals, enjoying "family fun" exhibits, partaking in automobile exhibits, shopping, or the carnival. That was a vital part of the process of understanding the general

population to determine if the majority of visitors had any interest in learning about animals while at the fair. Homeyer (2016) concluded that communicators are able to formulate a message with the highest chance of impacting their audience if they first understand the audience's experiences and perspectives.

A series of demographic and media consumption questions were included in questionnaires at all three locations to determine the participant characteristics and how to best reach them via media sources as a potential educational tool. Bryman (2012) noted reliability "refers to the consistency of the measure of a concept" (p.169). During the summer of 2014, the reliability of the demographic and media questions were assessed by conducting a pilot study using participants with similar demographics (age, student status, and geographic location). Because the fair attendance and participation questions were not summatable-type items, a test-retest approach was used to estimate the coefficient of stability. The *r* coefficients of the items in the questionnaire ranged from .79 to .96, which was an indication that the items were stable across measures.

Research question two regarded the demographic and psychographic differences in the people who attend the State Fair of Texas. To answer this question, I utilized a set of highly tested questions. Researchers in the Digital Media Research and Development Laboratory (DMRDL), developed the questions to align with monthly and quarterly reports published by Nielsen Audio, demographic consumption reports by Nielsen (2013, 2014) and Pew Research Center (2010), and empirical research reported by Pendergast (2010). DMRDL researchers conducted several pilot tests with revisions to refine questions (Bishop & Piwonka, 2015; Bosse, 2015; Curbello, 2015; Froebel, 2015; Mobly

& Hill, 2014; Svatek, 2015). Final estimates of temporal stability (test-retest) were reported, ranging from .79 to .96 (Bishop & Piwonka, 2015; Bosse, 2015; Curbello, 2015; Froebel, 2015; Svatek, 2015).

By using industry-standard metrics, the questions developed by the researchers were considered valid. Field (2009) stated that .80 is the acceptable threshold of metric adequacy for estimates of reliability. As noted by Homeyer (2016) "… because the coefficients of temporal stability reported by DMRDL researchers for this questionnaire were approaching or exceeding the .80 acceptability measure, the questions were considered to be reliable" (p. 39).

Research questions three and four concerning the effect of the barn experience and the effect of Livestock 101 on people who attend the State Fair of Texas were answered via a set of questions received by respondents in both the pre- and post-testing. The questions were regarding respondents' knowledge and overall perceptions of various aspects of animal agriculture such as identifying cattle, sheep, swine, and poultry, and ranking their perceptions of humane treatment of those animals raised for human food and youth livestock shows. Respondents were also asked about their standing knowledge of FFA and 4-H programs and experiences in a barn at a livestock show.

Research question five regarding Livestock 101's ability to have a positive impact on fairgoers' perceptions of animal agriculture was addressed through a series of questions in both the pre-and post-testing at Livestock 101 and after the barn experience. The series of questions regarded the humane treatment of cattle, swine, poultry, and sheep in both youth livestock shows as well as commercial production agriculture. A question also

addressed the very basic fact of understanding if fairgoers considered "raising animals for human food" as part of agriculture to better understand what the common consumer considers agricultural practices.

Participant Characteristics

The general population of this study included 2018 State Fair of Texas visitors. (N = 2,049,118). The sample subsets of the population included in this study were surveyed at the Big Tex Farmyard, the cattle barns near the Livestock Judging Pavilion, and at the Livestock 101 tent. Further, only State Fair of Texas visitors who were at least 18 years of age and present in the specified survey locations were included in this study.

As stated previously, it is valuable to understand consumers and their background, therefore demographics were regarded as very important pieces of this study. Table 1 indicates the generalized demographics of the study participants, specifically Table 1 shares the frequency (f) and percent (%) of the gender, education level, and residency groups, and the frequency, percent, mean (M), standard deviation (SD), minimum (min), and maximum (max) of the different age groups.

As shown in Table 1, there were a total of (N = 675) respondents that agreed to take the survey and were at least 18 years old. The 18-29-year-olds were the most populated group with more than 49% of respondents grouped in that age category. The average age was (M = 33). The standard deviation of ages was (SD = 12.93). The minimum age was (min = 18) and the maximum age was (max = 78). More than 57% (f = 389, % = 57.6) of respondents were female and there were (f = 271, % = 40.1) males. The majority of

respondents (*f* = 70, % = 90.91) were from Texas, with respondents from outside the state (*f* = 7, % = 9.09) coming from locations such as Oklahoma, Georgia, and Florida.

Table 1
Self-reported demographics of respondents.

	f	%	*M*	*SD*	*min*	*max*
Age						
Total	675	100.00	33.74	12.93	18	78
18-29	333	49.33	21	3.20	18	29
30-45	209	30.96	31	4.57	30	45
46-64	120	17.78	47	5.29	46	64
65+	13	1.93	65	3.69	65	78
Gender						
male	271	40.1	--	--	--	--
female	389	57.6	--	--	--	--
non-binary/third gender	7	1.0	--	--	--	--
prefer to self-describe	0	0.00	--	--	--	--
prefer not to say	8	1.2	--	--	--	--
Education (completed)						
did not complete high school	8	1.60	--	--	--	--
high school or equivalent	87	17.43	--	--	--	--
2-year college degree	86	17.23	--	--	--	--
4-year college degree	214	42.89	--	--	--	--
graduate degree	104	20.84	--	--	--	--
Residence						
Other	7	9.09	--	--	--	--
Texas	70	90.91	--	--	--	--

Note. Completed high school diploma or equivalent (GED); Completed a 2-year college degree (associate's) and/or technical certification; Completed a 4-year college degree (bachelor's); Completed a graduate degree (master's or doctorate). Of the 675 total respondents, some did not answer all questions reported here. Reported numbers are only for respondents who agreed to take the questionnaire, for those who did not agree we only have reported observed gender.

Table 2 reports respondents' self-selected reasons for attending the State Fair of Texas that day. The most widely selected response was "eat fair food," selected (*f* = 604, % = 89.48) of the time with an average rank of (*M* = 2.13) as one of the top activities at the fair according to the majority of fairgoers. Closely following, see animals was selected (*f* =

536, % = 79.41) of the time with an average rank of (*M* = 3.15) deeming it another one of the most popular attractions at the fair. Other popular selections were "watch fun shows and/or family attractions" (*f* = 490, % = 72.59) with an average rank of (*M* = 3.94) and "watch livestock shows" (*f* = 388, % = 57.48) with an average rank of (*M* = 4.36). Table 27 shares the reasons specifically Livestock 101 attendees visited the fair, Table 28 shares the reasons Livestock Barn attendees visited the fair, and Table 29 shares the reasons that Farmyard visitors specifically visited the State Fair of Texas.

Table 2
Self-reported reasons why fairgoers attended the State Fair of Texas.

	Yes		Rank	
	f	%	*M*	SD
Attend a special event (football game, military day, etc.)	168	24.89	3.53	2.84
See automobile attractions	349	51.70	4.11	2.07
Ride the rides on the midway	307	45.48	3.63	2.08
Eat fair food	604	89.48	2.13	1.52
Watch fun shows and/or family attractions	490	72.59	3.94	1.96
See live music performances	265	39.26	4.68	2.11
Go shopping	308	45.63	4.69	2.14
See arts displays and contests	373	55.26	4.70	1.96
Watch livestock shows	388	57.48	4.36	1.93
See animals	536	79.41	3.15	1.84

Note. *f* = frequency of selected reason; % = percentage of total per reason (by row); *M* = average rank of the answer, SD = standard deviation of the rank. Of the 675 total respondents, some did not answer all questions reported here. Respondents could choose multiple answers, but if they only chose one, they could only rank one.

Sampling procedures

The purpose of the questionnaire was to collect demographic and psychographic information such as age, gender, education level, social media and media outlet usage, and a general animal agriculture knowledge and perception rating for each respondent. Those

findings in turn were compiled to provide more information about the respondents and, therefore, the effect of Livestock 101. The questionnaire was administered on an iPad utilizing Qualtrics™ offline survey software, September 2018 version. By utilizing the offline survey downloaded onto an iPad, study participants across the fair could easily fill out the questionnaire without the burden of depending on WiFi.

There was potential for as much as 100% of the fairgoers to be included in the uneducated consumer group; Therefore, an intercept sampling method of fairgoers at those specified locations were chosen to get the most appropriate and convenient random representation of visitors across the fairgrounds. The intercept method was employed in the study to meet fairgoers where they were and offer the opportunity for participation at a time and location that was not a hindrance to their day and that the respondent felt comfortable. I could have chosen to assign fairgoers to the groups based on demographic background or perceived knowledge of animal agriculture, but not only would that likely decrease the response rate, it would likely not result in responses from the most urban sample of fairgoers. Miller, Wilder, Stillman, and Becker (2011, p. 655) concluded "the street intercept method is a feasible alternative to traditional population survey methods and may provide better access to harder-to-reach segments of the urban population".

A content analysis or structured or semi-structured interview could have been utilized for this study, but a self-completed questionnaire was chosen as the method of data collection because it offered the most feasible analysis of the subjects and the experiment. The self-completed questionnaire offered a relatively inexpensive and quick administration, eliminated interviewer effects as the interviewee answered questions

privately on the offline survey, and it was convenient for the respondents. I recognize that some disadvantages to the self-administered questionnaire included the potential for respondent fatigue, the inability to prompt certain feedback or answers, a greater risk for incomplete or missing data, and the heightened potential for lower response rates, but the data collection method was chosen because it produced the greatest opportunity for accurately answering the research questions.

Additionally, the questionnaire allowed for representation of the larger population of the more than two million State Fair of Texas visitors per year. According to Kraemer (1991), survey research has three distinguishing characteristics: a) it quantitatively describes a portion of the population; b) data are collected from individuals, meaning it is subjective; and c) it utilizes one or selected samples (*n*) that can be related back to the full population (*N*).

Surveys were conducted in three locations on the fairgrounds, at the entrance and at the exit of the Big Tex Farmyard, the primary entrance and exit of the Cattle barn near the Livestock Judging Pavilion, and at the Livestock 101 tent. State Fair of Texas officials determined the three locations based on applicability as related to the study while also keeping in mind traffic-flow and timeliness as acceptable locations. The Farmyard was chosen as a location because it is stationed across the fair from the livestock barns and Livestock 101 tent in the less agriculturally focused area of the fair, but still is an agriculture experience exhibit. The cattle barn was chosen as opposed to the swine, sheep, or poultry barns due to size and a larger expected number of visitors.

While some might argue that the locations were not broad enough to capture opinions across the fair, it was ideal to capture data from fairgoers who had some level of interest in agriculture. All three locations targeted individuals who do have some level of interest because they chose to be present at an agricultural exhibit rather than the carnival, for example, at the fair as Rumble and Buck (2017) pointed out in their study regarding consumers at fairs. These individuals are likely to be more interested in the learning experience.

All surveys were administered using Qualtrics™ offline survey software via iPad to fairgoers who were 18 years of age or older and agreed to participate in the survey. Research team members approached fairgoers as they were entering or exiting the Farmyard or walking by on the nearby sidewalk. Both the barn experience and Livestock 101 questionnaires had two parts. The barn experience pre-survey was given to adults who agreed to participate as they were approaching the judging pavilion. The respondent was then asked to watch the livestock show and walk through the livestock barn(s) and then return to complete the post-survey. The Livestock 101 pre-survey was administered as visitors sat down at the presentation bleachers and they were asked to complete the survey before the presentation began and stay until the end of the presentation to complete the post-survey. The primary hindrance with the data collection regarded the Livestock 101 participants staying through the full presentation and agreeing to complete the post-experience survey. The vast majority of 101 listeners only stayed for a few minutes of the presentation rather than the full time.

A team of trained researchers from Texas A&M University, typically working in pairs, and a field supervisor conducted the questionnaire delivery and data collection. The pairs were allowed one iPad per team, which could have limited the response rate, but was the feasible option due to a limited number of iPads and large number of participating researchers.

In the case of a refusal to complete the questionnaire, the researcher still recorded the attempt with records of the individual's location and observed gender. All responses were recorded during weekends of the State Fair of Texas, specifically September 29th and 30th, and October 6th, 7th, 13th, 14th, 20th, and 21st. All of the data collection took place between the hours of 10 a.m. and 6 p.m. Livestock 101 presentations were shared at 11 a.m., 1 p.m., 3 p.m., and 5 p.m. each day of the fair; the Farmyard was open to public visitors from 10 a.m. to 6 p.m. each day of the fair, and the livestock barns were open during all working hours of the fair.

The participants were offered a selection of incentives including Whataburger coupons, stress balls in the shapes of cows and pigs, and headphone holders upon completing all parts of the questionnaire process at their given location. Incentives were a vital part to the success of the research as with any type survey data collection because respondents need a tangible motivation to be part of a study and complete the questionnaire in its totality (Dillman, Smyth, & Christian, 2014).

Attrition

Attrition typically occurs in two forms, overall attrition and differential attrition (Cooper, 2011). Overall attrition occurs when participants in a study are removed from

the population for a given reason, and if large enough, can suggest a lack of study validity due to generalized populations that aren't representative.

Differential attrition occurs when the differences in the subpopulation at the start of a study do not match the differences in the subpopulation at the conclusion of the study. Differential attrition could result from people exiting a study at some point other than the end of the study for a number of reasons. In this study, the opportunity for attrition existed when fairgoers were approached and asked to participate in the study by completing the questionnaire.

The three samples (groups) included in this study were identified by location and activity on the fairgrounds. The persons included in the farmyard group were only asked to respond to [27] questions included in a single administration of the survey. Persons in the other two groups (barn experience and Livestock 101) were asked [22] questions before they walked through the barns and/or participated in the Livestock 101 experience, and then, they were asked to respond to a follow-up set of questions after the experience. Therefore, there were some cases of persons who completed initial set of questions (pre-test), but did not complete the follow-up part of the survey (post-test). Those persons were counted in the total attrition in the study (n = 33). Beyond Table 3, hose respondents are not included in the number of total respondents as mentioned throughout the remainder of this paper.

The observed gender of the individuals at the Farmyard (general fairgoers), Barn experience fairgoers, and Livestock 101 fairgoers, is broken down in Table 3 by invited, accepted, and refused to best explain the overall attrition associated with the study. A total

(N = 1,033) fairgoers were invited to participate, and of those, (N = 330) refused, leaving a total of (N = 703) accepted respondents across the three locations.

Table 3
Observed gender of individuals in the study depicting overall attrition in the study.

	Invited		Refused		Accepted	
	f	%	*f*	%	*f*	%
General fairgoers*						
male	164	15.88	--	--	164	23.33
female	244	23.62	--	--	244	34.71
unidentified	1	00.10	--	--	1	00.14
Barn fairgoers*						
male	78	07.55	--	--	78	11.10
female	119	11.52	--	--	119	16.93
unidentified	13	01.26	--	--	13	1.85
Livestock 101 fairgoers*						
male	24	02.32	--	--	24	3.41
female	36	03.48	--	--	36	5.12
unidentified	24	02.32	--	--	24	3.41
Unidentified location						
male	146	14.13	146	44.24	--	--
female	182	17.62	182	55.15	--	--
unidentified	2	00.15	2	00.61	--	--
Total	1033	100	330	100	703	100

Note: Additionally, 25 respondents did not meet the age requirements and were not included in further reports.

In Table 4, the differential attrition is reported by defining the difference in the self-reported genders of individuals who accepted the invitation to participate on both the pre- and post-test questionnaires to determine the standing difference or lack thereof. Table 4 shares that of the respondents who actually answered the question, there were (f = 60) less male participants and (f = 97) less female participants in the barn experience post-survey,

and ($f = 20$) less males and ($f = 22$) less females in the 101 study. While the female numbers showed the higher difference, the differences were relative to the original numbers of males versus females. This information depicts that it was not specifically one gender that contributed to the differential attrition, but that there was a significant decrease in participants from the pre-surveys to the post-surveys.

Table 4

Self-reported gender of participants depicting differential attrition.

	Pretest		Posttest		Difference	
	f	%	*f*	%	*f*	%
Farmyard						
male	160	40.71	--	--	--	--
female	223	56.74	--	--	--	--
non-binary/third gender	5	1.27	--	--	--	--
prefer to self-describe	0	0	--	--	--	--
prefer not to say	5	1.27	--	--	--	--
Barns						
male	78	37.14	18	37.50	60	-0.36
female	127	60.48	30	62.50	97	-2.02
non-binary/third gender	2	0.95	0	0	2	0.95
prefer to self-describe	0	0	0	0	0	0
prefer not to say	3	1.43	0	0	3	1.43
Livestock 101						
male	33	45.21	13	41.94	20	3.27
female	40	54.79	18	58.06	22	-3.27
non-binary/third gender	0	0	0	0	0	0
prefer to self-describe	0	0	0	0	0	0
prefer not to say	0	0	0	0	0	0

Note. Not all respondents at each location answered every question on the survey, limiting certain responses and affecting percentages.

In addition to differential attrition due to gender, self-reported education amongst the individuals who accepted the invitation to participate may define another factor of differential attrition in the study, as depicted in Table 5. Table 5 shares the largest difference amongst the 4-year college degree graduates contributing to attrition in both the

barns (f = 50, % = -7.25) and Livestock 101 (f = 12, % = -5.45) surveys. While the differences were higher in the barn experience, those numbers were relative to the number of respondents in one area versus the other. There was also a substantial difference in the graduate degree category at the barns (f = 32, % = -0.49) and Livestock 101 (f = 8, % = 3.64). Percentages were affected because not each respondent included in the total group numbers answered the question.

Table 5

Comparison of self-reported education in differential attrition.

	Pretest		Posttest		Difference	
	f	%	*f*	%	*f*	%
Barns						
did not complete high school	4	2.53	0	0	4	2.53
high school or equivalent	31	19.62	5	16.13	26	3.49
2-year college degree	18	11.39	3	9.68	15	1.71
4-year college degree	65	41.14	15	48.39	50	-7.25
graduate degree	40	25.32	8	25.81	32	-0.49
Livestock 101						
did not complete high school	2	3.64	0	0	2	3.64
high school or equivalent	10	18.18	4	18.18	6	0
2-year college degree	9	16.34	4	18.18	5	-1.84
4-year college degree	22	40.00	10	45.45	12	-5.45
graduate degree	12	21.82	4	18.18	8	3.64

Note. Completed high school diploma or equivalent (GED); Completed a 2-year college degree (associate's) and/or technical certification; Completed a 4-year college degree (bachelor's); Completed a graduate degree (master's or doctorate). Not all respondents at the locations answered every question.

Missing Data

A third type of attrition was missing data. Some respondents participated in both the pre and post questionnaires and completed the majority of the questions, but did not provide only a few answers. This missing data affected the overall number of usable surveys as well as data findings.

Before data collection occurred, I decided that only individuals who provided 90% of the responses or more would be included in the results. Although multiple follow-ups were recommended to maximize responses (Dillman et al., 2014), follow-up procedures were not included in the protocol approved by the Texas A&M University's Human Subjects Research review (IRB). Therefore, I did not attempt to collect identifying information that would allow for follow-up procedures to be implemented.

Table 6 includes respondents that started their respective survey but did not complete at least 90% of the questions in it. While we have data on these respondents, they cannot be included in final totals or conclusions because they were not part of the original plan. There were a total of (N = 33) respondents who started but did not complete the survey. Of the respondents that started but did not complete, (f = 10, % = 30.30) were at Livestock 101 and (f = 23, % = 69.70) were at the livestock barns.

Table 6
Started but did not complete the survey.

	f	%
Livestock 101	10	30.30
Barns	23	69.70

Note: Farmyard participants are not included in this data because there was no opportunity for a follow-up test.

Some fairgoers who were invited to participate in this study declined to participate or did not meet the minimum 18 years of age requirement (N = 25). The research team approached 1,033 fairgoers of whom, 675 indicated being at least 18 years of age or older and willing to participate, which resulted in a n = 678 participation rate.

Deleted Cases

Once data were collected, I reviewed responses and identified cases in which an individual did not complete 90% or more of the questions asked, which resulted in 33 cases being removed from the dataset and, therefore, reduced the number of participants to 645.

Because this was a quasi-experimental study, individuals were not assigned to specific groups. Instead, they were recruited based on location and experiences in which they had self-selected to participate.

Figure 1 displays participant flow through stages of the study. We started with (n = 2,049,118) eligible respondents [number of 2018 State Fair of Texas visitors] and had the opportunity to intercept (n = 1,033) of them. Of those, (n = 330) refused to participate and (n = 703) agreed to participate. Of those 703 participants, (n = 33) started but did not complete the questionnaire by not completing their respective pre or post-test. This resulted in study population of (N = 645).

At the Farmyard, a sample population of (n = 395) respondents agreed to participate in the study. There were additional respondents who were intercepted at the Farmyard and did not agree to participate, but their location was not determined when further examining the data.

At the barn experience, there were a total of (n = 258) intercepts or attempts at the pre-test, but only (n = 177) respondents agreed to participate in the pre-test. (n = 52) respondents completed the post-test at the barn experience. However, not all of those

respondents matched when looking further into the data. Therefore, the total sample population at the barns included (n = 41) respondents.

At the Livestock 101, there were a total of (n = 97) intercepts or attempts at the pre-test, but only (n = 73) respondents agreed to participate in the pre-test. (n = 32) respondents completed the post-test at the barn experience. However, not all of those respondents matched when looking further into the data. Therefore, the total sample population at the barns included (n = 26) respondents.

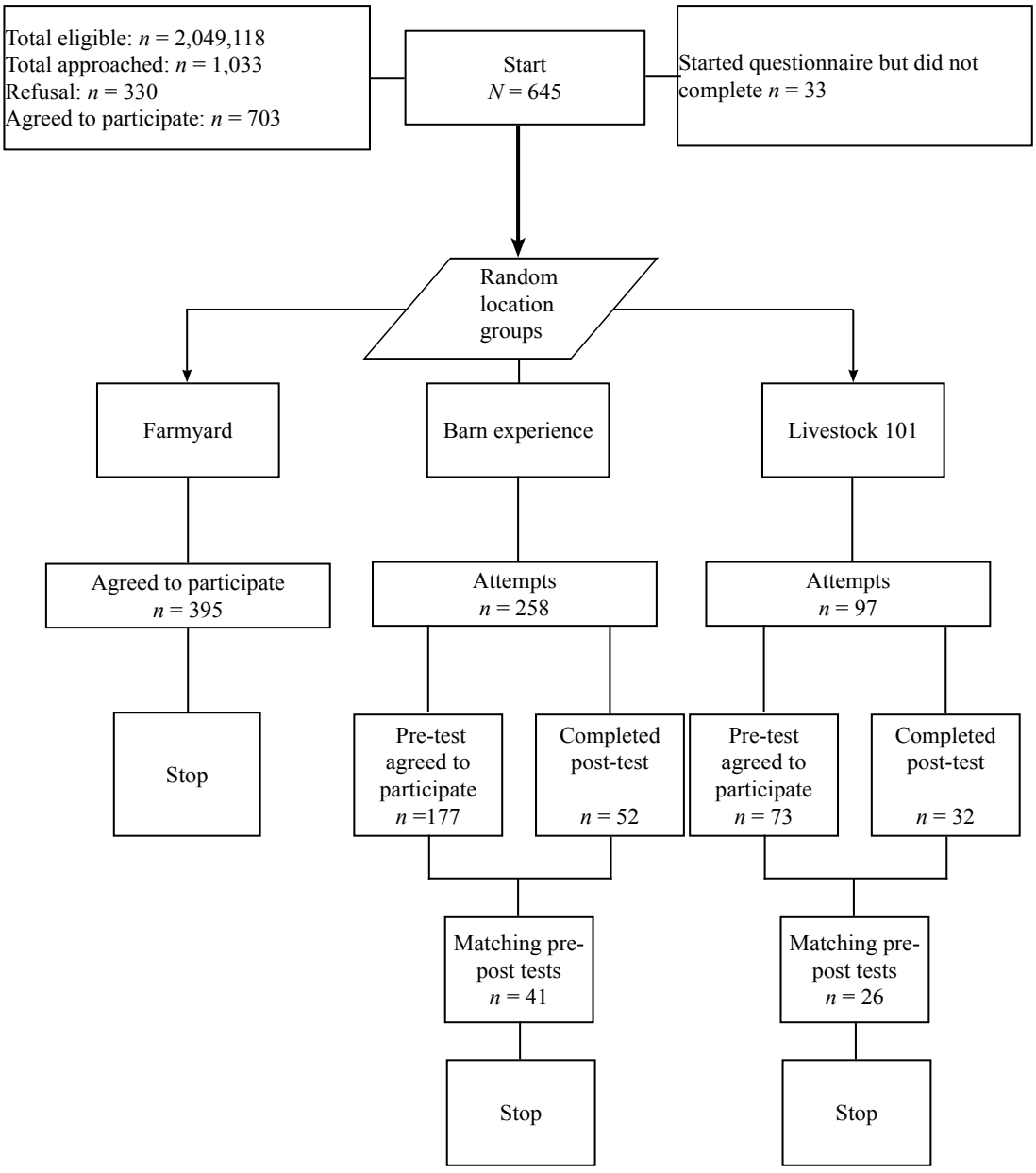
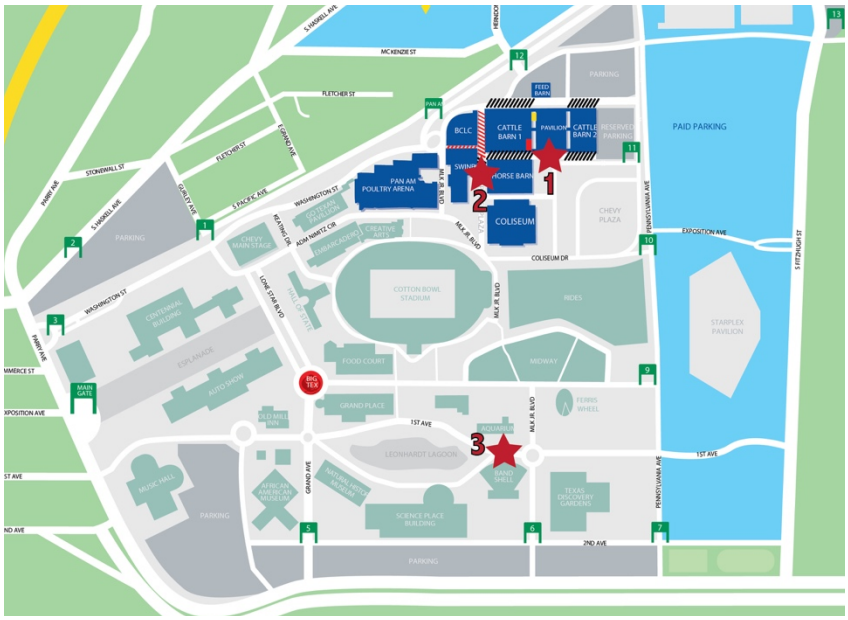


Figure 1. *Participant flow through stages of the study.*

Setting

The State Fair of Texas is an annual event that brings together visitors from various locations and backgrounds. The 2018 State Fair of Texas was held September 28th through October 21st. From 2016 through 2018, attendance included 2,049,118 visitors in 2018, 2,250,433 visitors in 2017, and 2,408,032 visitors in 2016. Figure 2 is a map of the State Fair of Texas indicating the data collection points at the Farmyard, Livestock Judging Pavilion, and Livestock 101.



Note: Data collection points: 1 = Barn experience; 2 = Livestock 101; 3 = Farmyard

Figure 2. *Map of the State Fair of Texas.*

Adverse side effects

The Livestock 101 demonstrations are intended to reflect the animals in the barns that day. However, while the livestock arrival, show, and departure times are set far in advance; the animals actually present in the barns did not always coincide with those used in the

Livestock 101 demonstrations. The 101 show presentation topics are not set in advance, therefore making the topics unpredictable. Because of that, we do not know nor can we predict the potential effect or direction of the potential effect. Not all animals included in the questionnaire were in the livestock barns or discussed in Livestock 101 presentations on some of the designated survey days. Therefore, the data could be affected by the unpredictability and lack of direct specie education on certain days.

Also, the primary host and co-host were consistent through all of the 101 presentations, but the exhibitors were not, nor were they predetermined. Therefore, the quality of education in each presentation was variable due to individual-exhibitor understanding of the presented specie, as well as presentation ability.

Additionally, data were likely skewed on some of the survey weekends because the majority of fair visitors were only present to attend the football game at the Cotton Bowl, located inside the fairgrounds. The data for reasons visitors attended the fair was likely skewed, limiting agricultural interest on those days. However, in some cases, that could be seen as an advantage to the study because of the diversity in the fairgoers' understanding of agriculture.

CHAPTER IV

RESULTS

The purpose of the study and the recently gathered data was to evaluate the Livestock 101 educational exhibit at the State Fair of Texas and determine its' capabilities as an agricultural consumer education tool, and then apply that data to other educational opportunities.

RQ1. Are there differences in State Fair of Texas attendees' reasons for attending?

RO1.1. Describe differences in fair attendees' reasons for attending.

In Table 7, it is reported than "eat fair food" and "see animals" were the most commonly selected reasons for attending the State Fair of Texas. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, fairgoers at the Farmyard attended the State Fair of Texas to "eat fair food" (*f* = 351, % = 88.86) and then "see animals" (*f* = 288, % = 72.91). Of the respondents who chose to answer the question, fairgoers at the livestock barns reported their top interests at the fair were to "eat fair food" (*f* = 41, % = 100) and "see animals" (*f* = 39, % = 95.12). Of the respondents who chose to answer the question, fairgoers at Livestock 101 reported their top interests at the fair were to "see animals" (*f* = 23, % = 88.46), "eat fair food" (*f* = 22, % = 84.62), and "watch fun shows and/or family attractions (*f* = 22, % = 84.62). Therefore, we can determine that eating fair food and seeing animals are top priorities amongst fairgoers at the State Fair of Texas.

Table 7
Self-reported reasons why fairgoers attended the State Fair of Texas by group.

	1		2		3	
	f	%	*f*	%	*f*	%
Attend a special event [1]	2	7.69	4	9.76	112	28.35
See automobile attractions	10	38.46	23	56.10	192	48.61
Ride the rides on the midway	12	46.15	19	46.34	174	44.05
Eat fair food	22	84.62	41	100.00	351	88.86
Watch fun shows and/or family attractions	22	84.62	31	75.61	273	69.11
See live music performances	9	34.62	12	29.27	151	38.23
Go shopping	9	34.62	24	58.54	171	43.29
See arts displays and contests	14	53.85	22	53.66	213	53.92
Watch livestock shows	21	80.77	29	70.73	191	48.35
See animals	23	88.46	39	95.12	288	72.91

Note. 1 = Livestock 101 attendees (n = 26); 2 = Livestock barn visitors (n = 41); 3 = Farmyard area visitors (n = 395). f = frequency of selected reason; % = percentage of total per reason (by total row number); [1] = (football game, military day, etc.). Not all respondents responded to every question, affecting frequencies and percentages.

In Table 8, the self-reported rankings of the self-reported reasons fairgoers attended the State Fair of Texas indicates that the majority of fairgoers selected "attend a special event" and "eat fair food" as their top ranked item. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question within the individual groups, fairgoers at the Farmyard on average ranked "eat fair food" as their top priority (M = 2.02). Fairgoers at the barn experience, on average, ranked "eat fair food" as their top priority (M = 2.10), and fairgoers at Livestock 101, on average, ranked "see animals" (M = 2.39) as their top priority. Eat fair food, see animals, and attend a special event were the top ranks across the locations, but the standard deviations and modes changed across the groups within those selections.

In addition, a frequency table of the individual rankings of each reason was included in Appendix A. Table 26 also notes that "eat fair food" and "see animals" were the most frequently ranked at either "1" or "2" for respondents' reasons for attendance.

Table 8

Rankings of self-reported reasons fairgoers attended the State Fair of Texas.

	1			2			3		
	M	*Mo*	*SD*	*M*	*Mo*	*SD*	*M*	*Mo*	*SD*
Attend a special event	1.00	1	0.00	3.35	1	2.68	2.91	1	2.54
See automobile attractions	4.24	4	2.31	4.45	4	2.03	3.81	3	2.01
Ride the rides on the midway	4.69	2	2.46	3.81	2	2.19	3.3	2	1.89
Eat fair food	2.43	1	1.87	2.10	1	1.52	2.02	1	1.34
Watch fun shows and/or family attractions	4.17	3	1.72	4.06	4	2.09	3.79	5	1.99
See live music performances	5.20	4	1.90	4.87	5	2.29	4.54	5	2.01
Go shopping	4.91	5	2.07	4.60	3	2.11	4.61	4	4.61
See arts displays and contests	4.25	4	2.06	5.12	6	1.90	4.62	4	1.91
Watch livestock shows	3.82	3	2.02	5.07	5	2.04	4.52	5	1.84
See animals	2.39	1	1.40	2.98	2	1.70	3.43	2	1.95

Note. 1 = Livestock 101 attendees (n = 26); 2 = Livestock barn visitors (n = 41); 3 = Farmyard area visitors (n = 395). 1 = Livestock 101 attendees; 2 = Livestock barn visitors; 3 = Farmyard area visitors. *M* = Mean; *Mo* = Mode; *SD* = Standard Deviation. Each respondent was asked to rank only the reasons he or she previously said were reasons for attending the fair. Therefore, one respondent may have selected and then ranked two items. Whereas, a different respondent may have selected and ranked ten items. If a respondent only selected one reason for attending the fair, this ranking question was not asked. However, the selected reason still counted as a number one ranking. [1] = (football game, military day, etc.)

The purpose of the second research objective was to compare the State Fair of Texas attendees' reasons for attending.

RQ2. Are there demographic and psychographic differences in the people who attend the State Fair of Texas?

RO2.1 Describe demographic and psychographic differences in attendees.

Table 9 reports the Livestock 101 experience pre-test scores for the agriculture knowledge questions, which included asking if respondents thought raising animals for human food was part of agriculture and if they knew what cattle, sheep, swine, and poultry were with answer choices of 'yes', 'maybe', and 'no'. I found that the majority of Livestock 101 fairgoers had a substantial base knowledge of agriculture. Not all respondents to the survey answered every question, therefore percentages were affected. The only questions that didn't have "yes" selected 100% of time were "raising animals for human food is part of agriculture" (maybe: $f = 3$, % = 11.54) and "do you know what cows or cattle are" (maybe: $f = 1$, % = 3.85).

Table 9
Livestock 101 experience agriculture knowledge pre-test scores.

	Yes		Maybe		No	
	f	%	*f*	%	*f*	%
Raising animals for human food is part of agriculture.	23	88.46	3	11.54	0	0.00
Do you know what cows or cattle are?	25	96.15	1	3.85	0	0.00
Do you know what pigs or swine are?	26	100.00	0	0.00	0	0.00
Do you know what chicken or poultry are?	26	100.00	0	0.00	0	0.00
Do you know what goats are?	26	100.00	0	0.00	0	0.00
Do you know what lambs or sheep are?	26	100.00	0	0.00	0	0.00

Note. Total Livestock 101 attendees ($n = 26$). Not all respondents answered each question, affecting frequencies and percentages.

Table 10 reports the barn experience pre-test scores for the agriculture knowledge questions, which included asking if respondents thought raising animals for human food

was part of agriculture and if they knew what cattle, sheep, swine, and poultry were with answer choices of 'yes', 'maybe', and 'no'. I found that the majority of barn experience fairgoers had a substantial base knowledge of agriculture. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, pigs/swine (f = 41, % = 100) and lambs/sheep (f = 41, % = 100) were the most well-known species amongst barn experience visitors with cows/cattle receiving a 'no' (f = 1, % = 2.44) and chicken/poultry receiving a 'no' (f = 1, % = 2.44) of the time. Those are not important values on scale. Barn experience fairgoers had the lowest agriculture knowledge scores on the question regarding if raising animals for human food is part of agriculture with (f = 35, % = 85.37) 'yes' answers, (f = 3, % = 7.31) 'maybe' responses, and (f = 2, % = 4.88) 'no' responses.

Table 10
Barn experience agriculture knowledge pre-test scores.

	Yes		Maybe		No	
	f	%	*f*	%	*f*	%
Raising animals for human food is part of agriculture.	35	85.37	3	7.31	2	4.88
Do you know what cows or cattle are?	40	97.56	0	0.00	1	2.44
Do you know what pigs or swine are?	41	100.00	0	0.00	0	0.00
Do you know what chicken or poultry are?	40	97.56	0	0.00	1	2.44
Do you know what goats are?	37	90.24	0	0.00	0	0.00
Do you know what lambs or sheep are?	41	100.00	0	0.00	0	0.00

Note. Total Livestock Barn visitors (n = 41). Not all respondents responded to each question, affecting frequencies and percentages.

Table 11 reports the farmyard pre-test scores for the agriculture knowledge questions, which included asking if respondents thought raising animals for human food was part of agriculture and if they knew what cattle, sheep, swine, and poultry were with answer

choices of ‘yes’, ‘maybe’, and ‘no’. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, I found that while the majority of farmyard fairgoers had a base knowledge of agriculture, they were still the group with the highest amount of ‘maybe’ and ‘no’ answers, and therefore had the lowest overall agriculture knowledge score of the three groups, farmyard, barns, and Livestock 101. Goats (f = 126, % = 31.90) were the most well-known species amongst farmyard visitors with cows/cattle (f = 122, % = 30.89) and lambs/sheep (f = 122, % = 30.89) closely following. Farmyard fairgoers had the lowest agriculture knowledge scores on the question regarding if raising animals for human food is part of agriculture with (f = 102, % = 25.89) ‘yes’ answers, (f = 9, % = 2.28) ‘maybe’ responses, and (f = 12, % = 30.38) ‘no’ responses. Pigs/swine (f = 119, % = 30.13) ‘yes’, (f = 6, % = 1.52) ‘maybe, and (f = 3, % =0.76) ‘no’, and chicken/poultry (f = 121, % =30.63) ‘yes’, (f = 3, % = 0.76) ‘maybe, and (f = 5, % =1.27) ‘no’ also resulted in low knowledge scores amongst fairgoers.

Table 11

Farmyard (general) agriculture knowledge pre-test scores.

	Yes		Maybe		No	
	f	%	*f*	%	*f*	%
Raising animals for human food is part of agriculture.	102	25.82	9	2.28	12	30.38
Do you know what cows or cattle are?	122	30.89	2	0.50	3	0.76
Do you know what pigs or swine are?	119	30.13	6	1.52	3	0.76
Do you know what chicken or poultry are?	121	30.63	3	0.76	5	1.27
Do you know what goats are?	126	31.90	1	0.25	2	0.50
Do you know what lambs or sheep are?	122	30.89	4	1.01	2	0.50

Note. Total Farmyard area visitors (n = 395). Not all respondents responded to each question, affecting frequencies and percentages.

Table 12 reports the findings for the animal identification question series in the pre-test given at the Livestock 101 and Barn locations and the general test given at the Farmyard. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, I found that individuals at the barn experience selected the correct answer the largest percentage of the time (f = 40, % = 97.56) in comparison to the other groups. The group that had the most incorrect selections were the farmyard fairgoers with (f = 121, % = 30.63) correct selections. Livestock 101 fairgoers selected the correct answer (f = 24, % = 92.31) of the time. The most frequently chosen incorrect answers were pig (f = 3, % = 0.76) and chicken (f = 3, % = 0.76).

Table 12
Animal identification pre-scores at all locations.

Which animal produces ground beef?	101		Barns		Farmyard	
	f	%	*f*	%	*f*	%
Cow	24	92.31	40	97.56	121	30.63
Sheep	0	0.00	0	0.00	1	0.25
Pig	0	0.00	0	0.00	3	0.76
Chicken	0	0.00	0	0.00	3	0.76
Goat	1	3.85	0	0.00	0	0.00

Note. Respondents were shown pictures of 4 different animals and had to select the bovine. * = *total respondents.* *Livestock 101 attendees (n = 26); *Livestock barn visitors (n = 41); *Farmyard visitors (n = 395). Not all respondents responded to every question, influencing frequencies and percentages.

To determine how familiar fairgoers were with livestock shows coming into the experience, we asked if they had even been inside of a livestock barn or ever watch a youth livestock show. Table 13 reports that the majority of fairgoers have both been inside of a

livestock barn and watched a livestock show. Not all respondents to the survey answered every question, therefore percentages were affected. However (*f* = 47, % = 11.90) of the farmyard respondents said they had never been inside of a livestock barn, and a close (*f* = 25, % = 6.33) of farmyard visitors said they had not watched a youth livestock show either. The largest selection of 'maybe' as a response occurred within the farmyard group regarding being inside of a livestock barn with (*f* = 8, % = 2.03). The Livestock 101 fairgoers were significantly familiar with only (*f* = 3, % = 11.54) 'no' responses on both questions. The barn experience respondents were also generally familiar, but their answers were in a range with (*f* = 11, % = 26.83) 'no' responses regarding if they had been inside of a livestock barn.

Table 13
Livestock show familiarity by group pre-test.

	Yes		Maybe		No	
	f	%	*f*	%	*f*	%
Livestock 101*						
Have you ever been inside of a livestock barn?	20	76.92	0	0.00	3	11.54
Have you ever watched a youth livestock show?	23	88.46	0	0.00	3	11.54
Barn experience*						
Have you ever been inside of a livestock barn?	29	70.73	1	2.44	11	26.83
Have you ever watched a youth livestock show?	35	85.37	2	4.88	4	9.76
Farmyard						
Have you ever been inside of a livestock barn?	68	17.22	8	2.03	47	11.90
Have you ever watched a youth livestock show?	99	25.06	3	0.76	25	6.33

Note: *Respondents were asked this question before entering their educational experience (livestock barn or Livestock 101), and after. * = *total respondents.*
*Livestock 101 attendees (*n* = 26); *Livestock barn visitors (*n* = 41); *Farmyard visitors (*n* = 395).

A previous understanding or knowledge of the youth programs involved in these youth livestock shows may influence respondents' psychographic differences as well as interest in learning and expectancy to receive the education from an agriculture education tool

well. Table 14 reports the 4-H and FFA knowledge of respondents at each of the locations, as they answered on the pre-test at 101 and the barn experience, and the single test at the farmyard. Not all respondents to the survey answered every question, therefore percentages were affected. As reported in Table 14, respondents at Livestock 101 had the highest level of combined knowledge for both youth organizations as [4-H: (*f* = 7, % = 26.92)], [FFA: (*f* = 11, % = 42.31)] of respondents selected "completely familiar". It appears as if respondents in the Farmyard were the least familiar with 4-H (*f* = 42, % = 10.63) 'not at all familiar', but the percentages are skewed because many farmyard respondents did not complete this question. Respondents in the barn experience were least familiar with 4-H (*f* = 8, % = 19.51) of the two organizations, and respondents in Livestock 101 were least familiar with 4-H (*f* = 7, % = 26.92) of the two organizations as well.

Table 14

Familiarity with 4-H and FFA by group.

	1		2		3		4	
	f	%	*f*	%	*f*	%	*f*	%
Livestock 101*								
4-H	6	*23.08*	*7*	*26.92*	*6*	*23.08*	*7*	*26.92*
FFA	3	*11.54*	*7*	*26.92*	*5*	*19.23*	*11*	*42.31*
Barn experience*								
4-H	11	*26.83*	*11*	*26.83*	*11*	*26.83*	*8*	*19.51*
FFA	10	*24.39*	*11*	*26.83*	*10*	*24.39*	*10*	*24.39*
Farmyard								
4-H	42	*10.63*	*29*	*7.34*	*33*	*8.35*	*19*	*4.81*
FFA**	--		--		--		--	

Note. 1 = Not at all familiar; 2 = Somewhat familiar; 3 = Familiar; 4 = Completely familiar. *Respondents were asked this question before entering their educational experience (livestock barn or Livestock 101), and after. **did not receive data for Farmyard FFA knowledge responses. * = *total respondents.* *Livestock 101 attendees (*n* = 26); *Livestock barn visitors (*n* = 41); *Farmyard visitors (*n* = 395).

RQ3. What is the effect of the barn experience on State Fair of Texas attendees?

RO3. Describe the effect of the barn experience on attendees.

Table 15 reports the barn experience post-test scores for the agriculture knowledge questions, which included asking if respondents knew what cattle, sheep, swine, and poultry were. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, respondents reported that all of the species were well known after the barn experience, with the only "maybe" score regarding if animals raised for human food is part of agriculture (*f* = 25, % = 96.15) 'yes', (*f* = 1, % = 3.85) 'maybe', (*f* = 0, % = 0) 'no'.

Table 15
Barn experience agriculture knowledge post-test scores.

	Yes		Maybe		No	
	f	%	*f*	%	*f*	%
Raising animals for human food is part of agriculture.	25	96.15	1	3.85	0	0
Do you know what cows or cattle are?	26	100	0	0	0	0
Do you know what pigs or swine are?	26	100	0	0	0	0
Do you know what chicken or poultry are?	26	100	0	0	0	0
Do you know what goats are?	26	100	0	0	0	0
Do you know what lambs or sheep are?	26	100	0	0	0	0

Note: Total Livestock Barn visitors (*n* = 41). Not all respondents answered every question, affecting frequencies and percentages.

Table 16 discusses the change found in the agriculture knowledge scores due to the barn experience by considering the mean (*M*) and standard deviation (*SD*) from the pre- and post-test responses and the change between those. Table 16 reports the biggest change after the barn experience was seen in the cows/cattle (MΔ = -.05, *SD* = .32) and chicken/poultry (MΔ = -.05, *SD* = .32) after participating in the barn experience. While the MΔ with the greatest change is a negative number, it is considered a positive change because as the scale goes, as respondents get closer to the "correct" answer of 'yes', the numbers get smaller. Because

there was already a notable agriculture base knowledge amongst the barn experience fairgoers, there were no important changes seen after the experience. Another change was noted in the question regarding animals for human food (*SD* Δ = .23), but overall no important changes were found in agriculture knowledge scores after the barn experience alone.

Table 16

Change in agriculture knowledge scores due to barn experience.

	Pre		Post		Δ	
	M	*SD*	*M*	*SD*	*M*	*SD*
Raising animals for human food is part of agriculture.	1.18	0.51	1.18	0.51	0.00	0.23
Do you know what cows or cattle are?	1.05	0.32	1.00	0.00	-.05	0.32
Do you know what pigs or swine are?	1.00	0.00	1.00	0.00	0.00	0.00
Do you know what chicken or poultry are?	1.05	0.32	1.00	0.00	-.05	0.32
Do you know what goats are?	1.00	0.00	1.00	0.00	0.00	0.00
Do you know what lambs or sheep are?	1.00	0.00	1.00	0.00	0.00	0.00

Note: Not all respondents in the Livestock Barn ($n = 41$) group responded to all of the questions, affecting the mean and standard deviation.

In Table 17, the animal identification scores received on the post-barn experience questionnaire are reported. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, there were no important changes identified in this question after the barn experience.

Table 17
Animal identification scores post-livestock barn experience.

	f	%	Δ
Cow	39	97.5	0.00
Sheep	0	0	0.00
Pig	0	0	0.00
Chicken	0	0	0.00
Goat	1	2.5	0.00

Note: Total Livestock Barn visitors (n = 41). Respondents were asked to identify the picture of the animal that ground beef came from. The correct answer was the selection of the picture of the beef cow, and pictures of sheep, pigs, chickens, and goats were also available answers. Not all respondents answered every question, affecting frequencies and percentages.

RQ4. What is the effect of Livestock 101 on State Fair of Texas attendees?

RO4. Describe the effect of Livestock 101 on attendees.

Table 18 reports the barn experience post-test scores for the agriculture knowledge questions, which included asking if respondents knew what cattle, sheep, swine, and poultry were. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, I found that after the Livestock 101 experience, 100% of the species were known by 100% of the respondents. While respondents selected (f = 25; % = 96.15) 'yes' and (f = 1; % = 3.85) 'maybe on the "raising animals for human food is part of agriculture" variable, respondents still chose "yes" the majority of the time.

Table 18
Livestock 101 agriculture knowledge post-test scores.

	Yes		Maybe		No	
	f	%	*f*	%	*f*	%
Raising animals for human food is part of agriculture.	25	96.15	1	3.85	0	0
Do you know what cows or cattle are?	26	100	0	0	0	0
Do you know what pigs or swine are?	26	100	0	0	0	0
Do you know what chicken or poultry are?	26	100	0	0	0	0
Do you know what goats are?	26	100	0	0	0	0
Do you know what lambs or sheep are?	26	100	0	0	0	0

Note: Total Livestock 101 experience visitors ($n = 26$). Not all respondents answered every question, affecting frequencies and percentages.

Data in table 19 reports the change found in the agriculture knowledge scores due to the barn experience by considering the mean (M) and standard deviation (SD) from the pre- and post-test responses. It is reported that the biggest change after the Livestock 101 experience was seen in the "raising animals for human food is agriculture" category ($M = -.10$, $SD = 0.30$). The only other change was seen in the "do you know what cows/cattle are" category ($M = -.05$, $SD = 0.22$). While there were changes, there were no valuable changes seen in the general agriculture knowledge series after Livestock 101 participation.

Table 19
Change in agriculture knowledge scores due to Livestock 101.

	Pre		Post		Δ	
	M	*SD*	*M*	*SD*	*M*	*SD*
Raising animals for human food is part of agriculture.	1.04	0.20	1.12	0.33	-.10	0.30
Do you know what cows or cattle are?	1.04	0.20	1.00	0.00	-.05	0.22
Do you know what pigs or swine are?	1.00	0.00	1.00	0.00	0.00	0.00
Do you know what chicken or poultry are?	1.00	0.00	1.00	0.00	0.00	0.00
Do you know what goats are?	1.00	0.00	1.00	0.00	0.00	0.00
Do you know what lambs or sheep are?	1.00	0.00	1.00	0.00	0.00	0.00

Note: Not all of the total respondents in the ($n = 26$) Livestock 101 responded to all of the questions, affecting the mean and standard deviation.

In Table 20, the animal identification scores received on the post-Livestock 101 experience questionnaire are reported. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question, there were no important changes to animal identification scores following the Livestock 101 participation.

Table 20
Animal identification scores post-livestock 101 experience.

	f	%	Δ
Cow	25	96.15	0.00
Sheep	0	0	0.00
Pig	1	3.85	0.00
Chicken	0	0	0.00
Goat	1	3.85	0.00

Note: Respondents were asked to identify the picture of the animal that ground beef came from. The correct answer was the selection of the picture of the beef cow, and pictures of sheep, pigs, chickens, and goats were also available answers. Not all of the total Livestock 101 respondents ($n = 26$) answered all questions, affecting frequencies and percentages.

RQ5. Does Livestock 101 positively impact attendees' perceptions of animal agriculture at the State Fair of Texas?

RO5. Describe the impact of Livestock 101 on attendees' perceptions of animal agriculture.

A better idea concerning consumers' acceptance or refusal of youth livestock shows can be understood by asking the question, "should fairs continue to host youth livestock shows". It is a valuable piece of information educators should consider and understand before moving forward. Not all respondents to the survey answered every question, therefore percentages were affected. Of the respondents who chose to answer the question,

Table 21 reports that individuals in the Livestock 101 group support youth livestock shows more than the livestock barn respondents with (*f* = 23; % = 88.46) 'yes' or 'probably yes' responses, (*f* = 2; % = 7.69) 'maybe' responses, and (*f* = 1; % = 3.85) 'no' responses. The Livestock 101 group responses moved closer to support of youth livestock shows after the Livestock 101 experience, but the barn experience respondents were opposite and instead, moved farther away from selecting answers in support of shows. The barn experience respondents reported (*f* = 38; % = 92.68) 'yes responses in the pre-testing, and (*f* = 36; % = 87.81) 'yes' responses in the post-testing. The Farmyard responses are shown to be lower and in less support of youth livestock shows, but because so few respondents completed the answers for this question, the frequencies and percentages are skewed.

Table 21
Should fairs continue to host youth livestock shows?

	Yes		Maybe		No	
	f	%	*f*	%	*f*	%
Livestock 101						
Pre	23	88.46	2	7.69	1	3.85
Post	24	92.31	1	3.85	1	3.85
Barns						
Pre	38	92.68	1	2.44	2	4.88
Post*	36	87.81	3	7.32	2	4.88
Farmyard	105	26.58	12	3.04	5	1.27

Note: * = *total included in survey.* *Livestock 101 attendees (*n* = 26); *Livestock barn visitors (*n* = 41); *Farmyard visitors (*n* = 395). Yes = selection of '1 = Definitely Yes' and '2 = Probably Yes'; Maybe = selection of '3 = Maybe'; No = selection of '4 = Probably No' and '5 = Definitely No'.

Table 22 reports respondents answers regarding their perception of animal treatment in youth livestock shows regarding the mean (*M),* and standard deviation (*SD)* of the answers for each animal broken down by pre-test, post-test, and overall change in the barn

experience and livestock 101 experience. The Livestock 101 experience produced the most important change from pre- to post-test ($M\Delta$ = -.10). The barn experience saw a negative change ($M\Delta$ = 0.43) after the barn experience. The change values appear to be negative, but indicate a positive change as the scale increases in number with decreasing support of livestock shows. There were notable changes between pre and post-test observations at both Livestock 101 and the barn experience.

Table 22

Should fairs continue to host youth livestock shows? (M, SD)

	Pre		Post		Δ	
	M	*SD*	*M*	*SD*	*M*	*SD*
Livestock 101	1.31	0.79	1.23	0.71	-.10	0.44
Barn	1.41	0.87	1.41	0.92	0.43	-0.03

Note: * = *total included in survey.* *Livestock 101 attendees (*n* = 26); *Livestock barn visitors (*n* = 41). Yes = selection of '1 = Definitely Yes' and '2 = Probably Yes'; Maybe = selection of '3 = Maybe'; No = selection of '4 = Probably No' and '5 = Definitely No'.

Table 23 reports respondents answers regarding their perception of animal treatment in youth livestock shows regarding the mean (*M),* and standard deviation (*SD)* of the answers for each animal broken down by pre-test, post-test, and overall change in the barn experience and Livestock 101 experience. Livestock 101 produced the most notable change from pre- to post-test on three of the four species [cow ($M\Delta$ = 0.24); pig ($M\Delta$ = 0.14); and chicken ($M\Delta$ = 0.14)]. It is also notable that the cow saw the greatest change, ($M\Delta$ = 0.24) at 101 and ($M\Delta$ = 0.18) at the barns, potentially re-defining future educational tools and what they should target. There were important changes in perceptions of humane treatment of animals in youth livestock shows after the Livestock 101 and Barn experience.

Table 23

Are animals used in youth livestock shows treated humanely?

	Livestock 101						Barns					
	Pre		Post		Δ		Pre		Post		Δ	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Cow	4.19	1.30	4.35	1.20	0.24	0.77	4.03	1.12	4.17	1.14	0.18	0.51
Sheep	4.57	0.79	4.70	0.63	0.10	0.44	3.95	1.20	4.10	1.11	0.16	0.59
Pig	4.57	0.79	4.70	0.63	0.14	0.48	4.08	1.10	4.13	1.16	0.13	0.66
Chicken	4.52	0.85	4.70	0.63	0.14	0.48	3.97	1.18	4.10	1.18	0.08	0.60

*Note: * = total included in survey.* *Livestock 101 attendees (*n* = 26); *Livestock barn visitors (*n* = 41). 1 = strongly disagree; 2 =2; 3 = 3; 4 = 4; 5 = strongly agree.

Table 24 reports respondents answers regarding their perception of humane treatment of animals raised for human food regarding the mean (*M),* and standard deviation (*SD)* of the answers for each animal broken down by pre-test, post-test, and overall change in the barn experience and Livestock 101 experience. The barn experience produced the most notable change from pre- to post-test on all of the four species [cow ($M\Delta = 0.43$); sheep ($M\Delta = 0.52$); pig ($M\Delta = 0.57$); and chicken ($M\Delta = 0.43$)] because average answers per group went down, meaning the experience resulted in a more negative perception. It is also notable that the changes seen after the barn experience were all negative while the changes after Livestock 101 were positive. In this scenario, because the numbers increase with support of the variable, a positive change value means a positive change and not a negative change such as in previous tables in this study. There were important changes in perceptions of humane treatment of animals in youth livestock shows after the Livestock 101 and Barn experience.

Table 24

Are animals raised for human food treated humanely?

	Barns						Livestock 101					
	Pre		Post		Δ		Pre		Post		Δ	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Cow	3.31	1.64	3.27	1.25	-0.13	0.91	3.40	1.30	3.62	1.53	0.43	1.08
Sheep	3.31	1.59	3.17	1.28	-0.05	0.97	3.22	1.33	3.65	1.47	0.52	1.03
Pig	3.23	1.66	3.00	1.22	-0.16	0.93	3.13	1.24	3.58	1.53	0.57	1.21
Chicken	3.31	1.54	3.39	1.30	0.14	0.67	3.36	1.31	3.76	1.48	0.43	0.98
Goat	3.38	1.58	3.40	1.30	--	--	3.24	1.30	3.65	1.55	--	--

*Note: * = total included in survey.* *Livestock 101 attendees (*n* = 26); *Livestock barn visitors (*n* = 41). 1 = strongly disagree; 2 =2; 3 = 3; 4 = 4; 5 = strongly agree.

CHAPTER V

DISCUSSION

I support the hypothesis that Livestock 101 presents the potential for considerable adult education regarding livestock production in the agriculture industry. In this discussion, I will identify how each of the research question and objectives were measured, and interpret those findings from the collected data. I will also discuss suggested implications for the State Fair of Texas and potential implications for practice for fairs utilizing Livestock 101 as an example. Additionally, I will discuss study strengths and weaknesses.

RQ1 "What are the differences in State Fair of Texas attendees' reasons for attending the State Fair of Texas?" was answered by a series of questions asking Farmyard, barns, and Livestock 101 respondents to select from a list all of the reasons they had come to the fair and then rank those reasons for attendance.

We determined that "eat fair food", "see animals", and "watch livestock shows" were the most frequently selected reasons for attending at the barns and Farmyard. Livestock 101 respondents ranked "attend a special event", "eat fair food", and "see animals" on average, the highest. This suggests that fairgoers at the State Fair of Texas have an interest in seeing animals while at the fair and therefore should be met with a potential for agriculture education. Those findings support Holloway (2004) in his findings that when agricultural experts and non-agricultural experts come across one another, such as at fairs, there is a standing potential to improve consumer perceptions and increase their knowledge and understanding of agriculture.

RQ2 “Are their demographic and psychographic differences in the people who attend the State Fair of Texas” was answered by a series of questions regarding respondents’ demographics, which were thoroughly discussed in the methods section of this paper, respondents’ base knowledge of agriculture, and respondents differences in opinions as well as experience regarding youth livestock shows at fairs.

We found that the base knowledge of agriculture amongst adults at the State Fair was, on average high, with the only notable deviation coming from respondents in the Farmyard. Even then, there were not a notable amount of low knowledge scores except when compared to the other location groups. However, we found important differences between respondents’ familiarity and support/refusal of youth livestock shows at fairs as well as their familiarity with the youth programs 4-H and FFA.

These findings support that while adults at the State Fair have a base knowledge of agriculture and do not need basic agricultural education, there is a need for influential agriculture education programs targeting adults at fairs specifically regarding youth livestock shows. Promotion of those shows will in turn also be educational regarding production agriculture. While many people believe that agriculturists are only involved in the industry for an economical aspect, 4-H and FFA, through their skill-building model proves that the majority of individuals in agriculture are in it for more than just a business model. (Larsen 2017) That is a primary reason that the promotion of 4-H and FFA in agricultural settings is vital in this era.

RQ3 “What is the effect of the barn experience on the State Fair of Texas attendees” was answered by the series of pre-test questions answering RQ1 and RQ2, and then a

follow-up set of questions in the post-test regarding fairgoers knowledge and perception of agriculture after the barn experience. There was no notable difference in respondents' agriculture knowledge change from pre to post-testing.

There was a slight change in perceptions of youth livestock shows from pre to posting testing at the barns, therefore refuting Larsen's (2017) argument that the key to education at fairs is getting people to the barns. Larsen (2017) found in his study that because individuals were able to witness farmer interactions, which would in this case be youth interactions, with animals, and improved overall trust of agriculturists. Based on that, one would assume that perhaps the key is getting the general public to the barns, however the negative changes we saw do not support that.

RQ4 "What is the effect of Livestock 101 on State Fair of Texas attendees" was answered by the same series of pre-test questions answering RQ1 and RQ2, and then a follow-up set of questions in the post-test regarding fairgoers knowledge and perception of agriculture after the Livestock 101 experience. We found no notable changes in agriculture knowledge of respondents after the Livestock 101 experience.

This finding potentially refutes the educational theories regarding successful educational tool design and implementation by (Mezirow 1997) and (Bandura 2001). However, those findings could be related to the quality of education offered at Livestock 101 or improper implementation of the educational theories instead.

RQ5 "Does Livestock 101 positively impact attendees' perceptions of animal agriculture at the State Fair of Texas" was answered by a series of questions regarding respondents' support of youth livestock shows at fairs, as well as their perceptions of

humane treatment of animals used in youth livestock shows and animals raised for human food. There were notable changes in perceptions of humane treatment of animals in youth livestock shows and animals raised for human food after both the Livestock 101 and barns experiences. Farmyard respondents did primarily respond in support of youth livestock shows, but there were more negative responses at the Farmyard than at the barns or Livestock 101 in comparison.

Livestock 101 produced a positive change in fairgoers perception of humane treatment of animals at youth livestock shows and animals raised for human food. The barn experience produced a positive change of animals used in youth livestock shows, but a negative change on humane treatment of animals used for human food. It can be concluded based on the findings that Livestock 101 positively impacted fairgoers perceptions of agriculture, therefore supporting the hypothesis that Livestock 101 has the potential to be an influential adult education tool. However, the negative change seen after fairgoers walked through the barn is the most notable difference, and supports the need to promote youth livestock shows as found according to Davis et al. (2001) "the Texas 4-H program should publicize and promote these livestock projects through educational journals, newspaper articles, and through additional research as educational for 4-H members and their families. 4-H leaders and livestock show officials should consider publicizing the perceived benefit of competitive livestock shows."

Implications for practice

While Livestock 101 does not currently extend influential reach beyond the set presentations each day of the fair, there is a potential for year-round promotion of

agriculture and youth livestock shows on social media that could lead to an influential change. Gangarbatla, Bright, and Logan (2014) said the reason agriculturists should value the potential of social media is "individuals no longer seek news but news finds individuals, particularly on social media websites". This suggests that if agriculturists create and supply the content, it will find its' way to the consumers.

We found that the majority of State Fair of Texas visitors are on Facebook, followed by Instagram and Snapchat, at least once a month. State Fair of Texas leadership should consider implementing their findings into not only new aspects of Livestock 101 programming, but general fair promotion because Larsen (2017) said "agricultural fairs can work to reposition and reimagine agriculture."

Table 25
Media consumed by fairgoers at least once per month.

	Livestock 101		Barns		Farmyard	
	f	%	*f*	%	*f*	%
Facebook	22	84.62	35	85.37	307	77.72
Twitter	5	19.23	15	36.59	106	26.84
Instagram	10	38.46	27	65.85	218	55.19
Pinterest	4	15.38	14	34.15	117	29.62
Snapchat	8	30.77	19	46.34	157	39.75
LinkedIn	2	7.69	5	12.20	113	28.61
Reddit	2	7.69	4	9.76	50	12.66

Note: * = *total respondents.* *Livestock 101 attendees (*n* = 26); *Livestock barn visitors (*n* = 41); *Farmyard visitors (*n* = 395). Not all respondents answered every question, affecting frequencies and percentages.

There is room for improvement in the Livestock 101 programming based on observations of fairgoers willingness to participate in a full presentation as well as the lack of notable change in most of the findings in the study. I recommend that the State Fair

provide a more direct script for the host and better training for the exhibitor on stage to best captivate the audience and provide the most reliable information shared in a way that increases learners willingness to be there, following suggestions of the elaboration likelihood model. Hovland and Weiss (1951-1952) also said that a communicator or instructor's credibility is a reflection of that individual's fairness and factualness towards the subject, meaning that 101 needs to be led by a 'credible' instructor.

Promotion of Livestock 101 could be more widely distributed across the fair as proper signage or on maps to increase participation at the program, in addition to 101 social media use.

Livestock 101 programming, based on the findings of this study, should not focus on basic agriculture knowledge of adults at the fair, but rather more detailed or progressive information more applicable to adults as they leave the fair. Livestock 101 should also focus heavily on promotion of shows and youth programs, as well as humane treatment of animals, as that is where the most notable differences were found.

The State Fair could potentially benefit from working to influence fairgoers' perceptions of animals in agriculture as they walk through the barns since that was such as negative change noticed.

Strengths of the study

There were noticeable strengths and weaknesses regarding this study at the State Fair. The questionnaire was well-tested before being given to respondents at the State Fair, therefore the question reliability was trusting. However, there is always room for potential

bias in data from a social sciences study, so that should be considered when evaluating these findings.

The research team was well trained on intercepting individuals to participate in a study, resulting in a high participation rate and low refusal rate. Additionally, we placed a high value on the quality of data, and meticulously calculated results and aligned data to be reliable, working to produce the best possible product from this study.

Weaknesses/limitations

The delivery of the surveys could have been more successful with a research team spread more broadly among the survey days. One of the weekends included the majority of the researchers while the other three weekends did not. The response rate would have likely been higher with more researcher participating throughout the duration of the study.

The location of Livestock 101 also likely had an impact on the response rate. If the program had been located in a more heavily populated area, there would have been more potential respondents.

The response rate of Livestock 101 respondents would have been greater had they not been required to stay through the whole presentation. Many visitors to the program only stayed for a portion of the time rather than the whole presentation, limiting the post-101 survey potential. Additionally, the incentives I utilized were likely not influential enough to encourage fairgoers to participate in my survey.

The questions in the surveys were not as directly applicable to the learning experience as they could have been. The questions were broad, focused on general agriculture and included information that was not as valuable to the outcomes of the study as other more

direct, agriculturally focused questions could have been. A different set of questions could have been more valuable.

CHAPTER VI

CONCLUSIONS

In this chapter, I will offer general conclusions regarding the study and discuss further research that could be done regarding this topic.

In conclusion, this study did not find that Livestock 101 makes a notable difference on fairgoers knowledge and perceptions of animal agriculture. However, because previous studies defined a need for educational tools at fairs, and there was a positive change in perceptions following 101 participation, I still support that there is a potential for Livestock 101 to serve as an influential educational tool and offer a unique learning experience in a unique environment to a population of urban fairgoers.

Implications for additional research

We have determined there is a need for further research regarding educational tools at fairs. An evaluative and comparative study regarding interactive learning experiences versus self-led learning experiences would allow researchers to have a better understanding of the differences between the two types of programs, as well as provide fair leadership with data to build and implement new educational tools based upon. A self-led learning experience would be similar to the Farmyard where respondents complete the opportunity independently whereas an interactive learning experience would be similar to Livestock 101 where learners are given direct information and can interact with the teacher.

A study on the effect of Livestock 101 as an educational and influential tool with questions more specific to Livestock 101 programming rather than the broad approach we

took would offer a more thorough explanation of the impact or potential impact of Livestock 101.

Research regarding fair visitors' food consumption patterns and meat purchasing patterns would be useful for fairs to better understand the audience they are targeting based on food choices. The data would also be useful within the industry to understand the need for and potential for influence regarding animals raised for meat in production agriculture as well as what those consumption patterns are based on. Knowing that information would provide educators with more information on how to target specific audiences as well as what information would be most valuable to share.

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APPENDIX A

RANKINGS OF REASONS FOR ATTENDANCE

Table 26

Self-reported rankings of reasons fairgoers attended the State Fair of Texas.

	1		2		3		4		5		6		7		8		9		10	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Attend a special event	54	49.09	8	7.27	6	5.45	8	7.27	5	4.55	5	4.55	13	11.82	7	6.36	3	2.73	1	0.91
See automobile attractions	22	9.40	39	16.67	41	17.52	36	15.38	37	15.81	28	11.97	17	7.26	8	3.42	3	1.28	3	1.28
Ride the rides on the midway	26	12.94	54	26.87	36	17.91	34	16.92	12	5.97	16	7.96	8	3.98	12	5.97	2	1.00	1	0.50
Eat fair food	195	46.88	107	25.72	59	14.18	26	6.25	10	2.40	8	1.92	8	1.92	0	0.00	2	0.48	1	0.24
Watch fun shows and/or family attractions	46	13.73	45	13.43	60	17.91	58	17.31	60	17.91	35	10.45	13	3.88	14	4.18	2	0.60	2	0.60
See live music performances	15	8.38	14	7.82	23	12.85	29	16.20	34	18.99	24	13.41	23	12.85	10	5.59	7	3.91	0	0.00
Go shopping	9	4.50	30	15.00	32	16.00	27	13.50	31	15.50	29	14.50	21	10.50	11	5.50	9	4.50	1	0.50
See arts displays and contests	12	4.63	26	10.04	33	12.74	58	22.39	37	14.29	42	16.22	28	10.81	20	7.72	2	0.77	1	0.39
Watch livestock shows	23	8.71	23	8.71	55	20.83	44	16.67	57	21.59	24	9.09	21	7.95	12	4.55	3	1.14	2	0.76
See animals	75	19.74	92	24.21	81	21.32	58	15.26	27	7.11	25	6.58	13	3.42	5	1.32	3	0.79	1	0.26

Note. special event (football game, military day, etc.) selection totals = 110; automobile attractions selection totals = 234; rides on the midway selection totals = 201; eat fair food selection totals = 416; shows/family attractions selection totals = 335; live performances selection totals = 179; go shopping selection totals = 200; arts displays selection totals = 259; watch livestock shows selection totals = 264; see animals selection totals = 380.

APPENDIX B

RANKINGS OF REASONS FOR ATTENDANCE BY INDIVIDUAL GROUPS

Table 27

GROUP 1 – Livestock 101: Self-reported rankings of reasons fairgoers attended the State Fair of Texas.

	1		2		3		4		5		6		7		8		9		10	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Attend a special event (football game, military day, etc.)	2	40.00	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	20.00
See automobile attractions	3	9.68	5	16.13	4	12.90	6	19.35	5	16.13	1	3.23	4	12.90	2	6.45	1	3.23	0	0.00
Ride the rides on the midway	1	3.85	7	26.92	2	7.69	3	11.54	2	7.69	4	15.38	2	7.69	4	15.38	1	3.85	0	0.00
Eat fair food	21	44.68	10	21.28	5	10.64	5	10.64	2	4.26	2	4.26	1	2.13	0	0.00	1	2.13	0	0.00
Watch fun shows and/or family attractions	3	7.14	2	4.76	11	26.19	9	21.43	10	23.81	2	4.76	3	7.14	2	4.76	0	0.00	0	0.00
See live music performances	0	0.00	1	6.67	2	13.33	3	20.00	2	13.33	3	20.00	3	20.00	0	0.00	1	6.67	0	0.00
Go shopping	0	0.00	4	18.18	2	9.09	3	13.64	5	22.73	2	9.09	4	18.18	1	4.55	1	4.55	0	0.00
See arts displays and contests	4	12.50	3	9.34	4	12.50	8	25.00	2	6.25	7	21.88	3	9.34	0	0.00	1	3.13	0	0.00
Watch livestock shows	5	12.82	6	15.38	9	23.08	5	12.82	6	15.38	4	10.26	1	2.56	3	7.69	0	0.00	0	0.00
See animals	15	30.61	15	30.61	11	22.45	4	8.16	2	4.08	1	2.04	1	2.04	0	0.00	0	0.00	0	0.00

Note. special event selection totals = 5; automobile attractions selection totals = 31; rides on the midway selection totals = 26; eat fair food selection totals = 47; shows/family attractions selection totals = 42; live performances selection totals = 15; go shopping selection totals = 22; arts displays selection totals = 32; watch livestock shows selection totals = 39; see animals selection totals = 49.

Table 28

GROUP 2 – Livestock Barns: Self-reported rankings of reasons fairgoers attended the State Fair of Texas.

	1		2		3		4		5		6		7		8		9		10	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Attend a special event	11	42.31	3	11.54	1	3.85	3	11.54	2	7.69	0	0.00	4	15.38	1	3.85	1	3.85	0	0.00
See automobile attractions	5	7.25	8	11.59	8	11.59	16	23.19	12	17.39	10	14.49	6	8.70	2	2.90	0	0.00	2	2.90
Ride the rides on the midway	6	11.54	12	23.08	7	13.46	12	23.08	5	9.62	3	5.77	3	5.77	2	3.85	1	1.92	1	1.92
Eat fair food	56	48.70	26	22.61	18	15.65	6	5.22	3	2.61	1	0.87	5	4.35	0	0.00	0	0.00	0	0.00
Watch fun shows and/or family attractions	11	11.58	15	15.79	15	15.79	16	16.84	11	11.58	16	16.84	5	5.26	5	5.26	0	0.00	1	1.05
See live music performances	6	11.54	2	3.85	7	13.46	8	15.38	9	17.31	5	9.62	7	13.46	6	11.54	2	3.85	0	0.00
Go shopping	1	1.72	10	17.24	12	20.69	5	8.62	11	18.97	7	12.07	5	8.62	5	8.62	2	3.45	0	0.00
See arts displays and contests	1	1.47	3	4.41	11	16.18	13	19.12	11	16.18	15	22.06	4	5.88	8	11.76	1	1.47	1	1.47
Watch livestock shows	12	14.63	8	9.76	12	14.63	14	17.07	18	21.95	7	8.54	8	9.76	1	1.22	2	2.44	0	0.00
See animals	19	16.96	34	30.36	28	25.00	13	11.61	5	4.46	7	6.25	4	3.57	2	1.79	0	0.00	0	0.00

Note. special event (football game, military day, etc.) selection totals = 26; automobile attractions selection totals = 69; rides on the midway selection totals = 52; eat fair food selection totals = 115; shows/family attractions selection totals = 95; live performances selection totals = 52; go shopping selection totals = 58; arts displays selection totals = 68; watch livestock shows selection totals = 82; see animals selection totals = 112.

Table 29

GROUP 3 – Farmyard: Self-reported rankings of reasons fairgoers attended the State Fair of Texas.

	1		2		3		4		5		6		7		8		9		10	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Attend a special event	41	54.67	5	6.67	4	5.33	5	6.67	3	4.00	5	6.67	7	9.33	4	5.33	1	1.33	0	0.00
See automobile attractions	14	10.85	26	20.16	27	20.93	14	10.85	20	15.50	16	12.40	6	4.65	4	3.10	1	0.78	1	0.78
Ride the rides on the midway	18	14.75	32	26.23	28	22.95	19	15.57	6	4.92	9	7.38	4	3.28	6	4.92	0	0.00	0	0.00
Eat fair food	111	45.87	68	28.10	35	14.46	15	6.20	5	2.07	5	2.07	2	0.83	0	0.00	1	0.41	0	0.00
Watch fun shows and/or family attractions	28	14.81	27	14.29	33	17.46	32	16.93	36	19.05	17	8.99	6	3.17	7	3.70	2	1.06	1	0.53
See live music performances	9	8.65	10	9.62	13	12.50	16	15.38	23	22.12	15	14.42	12	11.54	3	2.88	3	2.88	0	0.00
Go shopping	7	6.19	15	13.27	17	15.04	19	16.81	13	11.50	19	16.81	12	10.62	5	4.42	6	5.31	0	0.00
See arts displays and contests	6	4.05	19	12.84	16	10.81	34	22.97	23	15.54	19	12.84	21	14.19	10	6.76	0	0.00	0	0.00
Watch livestock shows	6	4.69	7	5.47	30	23.44	21	16.41	32	25.00	13	10.16	9	7.03	8	6.25	1	0.78	1	0.78
See animals	35	17.33	40	19.80	39	19.31	38	18.81	19	9.41	16	7.92	8	3.96	3	1.49	3	1.49	1	0.50

Note. special event (football game, military day, etc.) selection totals = 75; automobile attractions selection totals = 129; rides on the midway selection totals = 122; eat fair food selection totals = 242; shows/family attractions selection totals = 189; live performances selection totals = 104; go shopping selection totals = 113; arts displays selection totals = 148; watch livestock shows selection totals = 128; see animals selection totals = 202.